# 2N® NetSpeaker

## IP Audio System

## Manual

Version 1.2

www.2n.cz

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Declaration of Conformity

2N TELEKOMUNIKACE hereby declares that the 2N® IP Audio System product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM enclosed and at www.2n.cz.

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# 2N® IP Audio System 1.2 EN

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# User manuals

This section provides with basic information on 2N® IP Audio System as well as with quick start guide and with manual for 2N® NetSpeaker hardware.

In this section:


- Introduction
- Quick Start
- HW Configuration Manual

# Introduction

## IP Audio System – 2N® NetSpeaker

**2N® NetSpeaker** is an IP audio system which allows you to play an acoustic message or any other audio stream from any LAN/WAN–connected PC. All you have to do to get a virtual broadcasting exchange is connect a standard loudspeaker or amplifier to your **2N® NetSpeaker**. The virtual exchange helps you play any audio system and create separate zones with different communication contents. You can make use of your existing LAN/WAN while installing your **2N® NetSpeaker** system to save the total implementation time and, of course, cut your wiring costs.

The **2N® NetSpeaker** IP Audio System consists of two basic components – a server and an audio converter. The ControlPanel software has been developed to configure the whole broadcasting system. Console and Player are software products designed for everyday use – broadcasting messages via a microphone and easy music playing respectively. Moreover, you can use the Android application for basic operations.

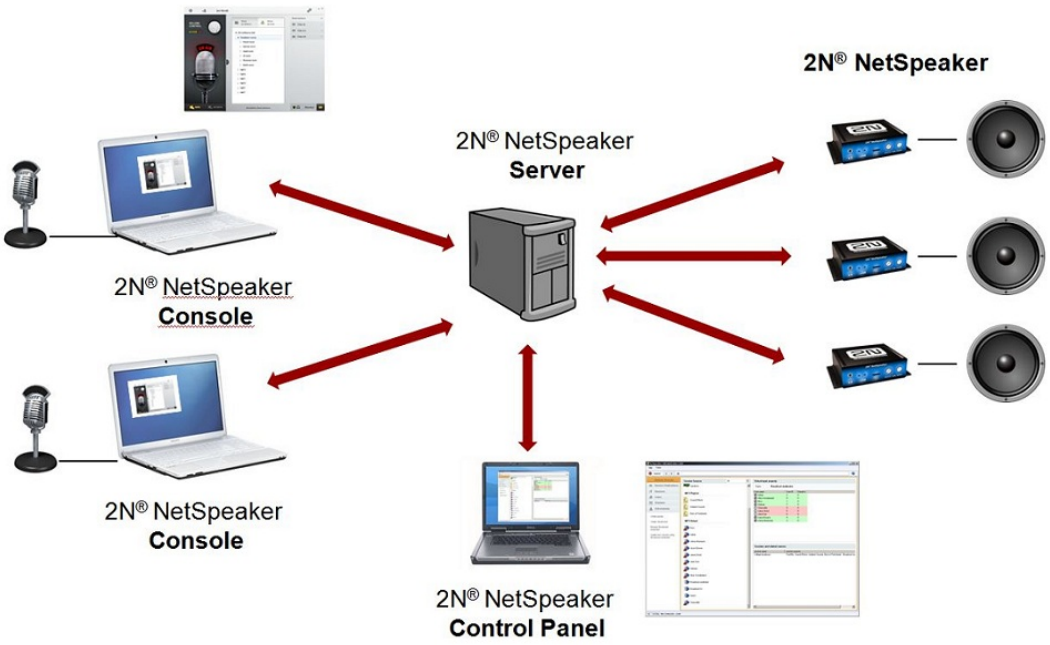


**Figure:** 2N® NetSpeaker System Layout

**Refer to the Introduction section for basic information on quick system installation and ControlPanel connection to the 2N® NetSpeaker Server.**

# Quick Start

**What you should know**

- **2N® NetSpeaker Server** requires administrator rights for installation.
- Firewall may block the **2N® NetSpeaker Server**.

## Quick Start Manual

Despite being a robust application for administration of a high number of (loud)speakers, **2N® NetSpeaker** can be ready for playing in a few minutes. The purpose of the Quick Start manual is to provide easy installation and quick launch of one playing. Just follow the quick steps below.

### Box Contents

In addition to mounting accessories, the box includes the **2N® NetSpeaker** unit and installation CD with the **2N® NetSpeaker** playing and control software. Refer to www.2n.cz for the latest software version. **Check the box contents before starting!**

### Installation Preparation

You need your **2N® NetSpeaker** unit, a 12V/2A power supply or PoE switch, the UTP cable and a PC or server for installation.

### Installation

**2N® NetSpeaker Server** and **2N® NetSpeaker** ControlPanel software installation:

- Launch the **2N® NetSpeaker Server** installer on the PC used as the server.
- Launch the **2N® NetSpeaker** ControlPanel installer on the PC used for control of the server.

Having installed the **2N® NetSpeaker Server**, you will be invited to restart the PC.

### 2N® NetSpeaker Connection and Playing

Set your **2N® NetSpeaker** system and prepare playing following the instructions and figures below.

- Connect the speakers to the network and switch on power. You can find the HW manual here.
- Launch the ControlPanel (default login data: name:Admin, password:2n).
- Select **Administrator -> NetSpeaker settings ->> NetSpeaker scanner**. You can see all NetSpeakers connected to your LAN network.
- Default configuration of the NetSpeaker is DHCP = ON (automatic IP address configuration), SEARCH MODE = ON (Netspeaker will search for a server).

  **Mode** – select the passive/active/search mode.
  - **Passive mode** means that it is necessary to set connection to **2N®**

**NetSpeaker** from the server side in the **NetSpeaker settings** –> **NetSpeaker connections** section.

- **Active mode** means that **2N® NetSpeaker** gets connected to the **2N® NetSpeaker** Server automatically using the **Server IP address** parameter.
- **Search mode** means that **2N® NetSpeaker** finds the **2N® NetSpeaker Server** in the network automatically, takes over the domain and gets connected to the Server.

Select the **2N® NetSpeaker** mode and IP address if necessary. Green icon means that NetSpeaker is connected/ready and you can find him in NetSpeakers & Zones menu.

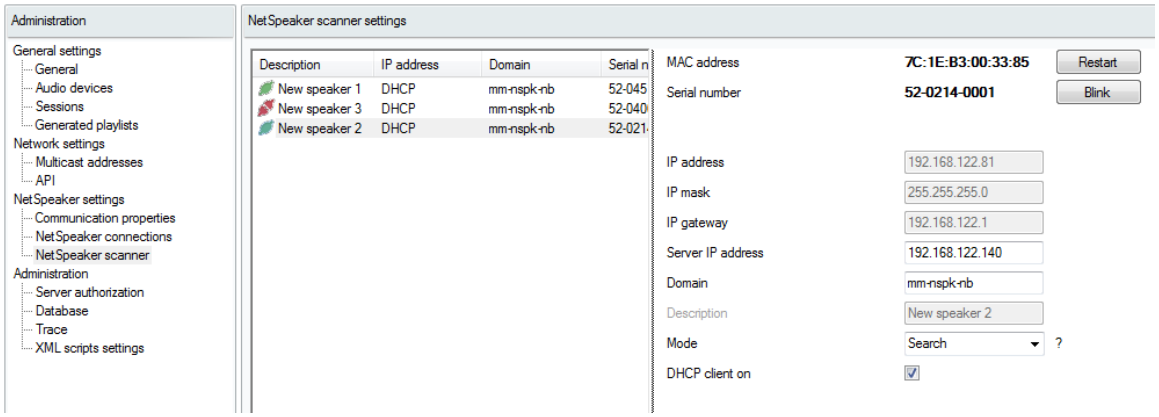


**Figure:** Setting Network Properties

- Select mode
  - Active mode + IP address of the server: save the setting and **go to the next step - NetSpeaker & Zones** (**2N® NetSpeaker** will be restarted).
  - Passive mode + static IP address: save the setting and **go to the next step - NetSpeaker & Zones** (**2N® NetSpeaker** will be restarted).

- Set a **New connection** with the parameters set in "Passive mode") in **Administrator -> NetSpeaker settings -> NetSpeaker connections**.

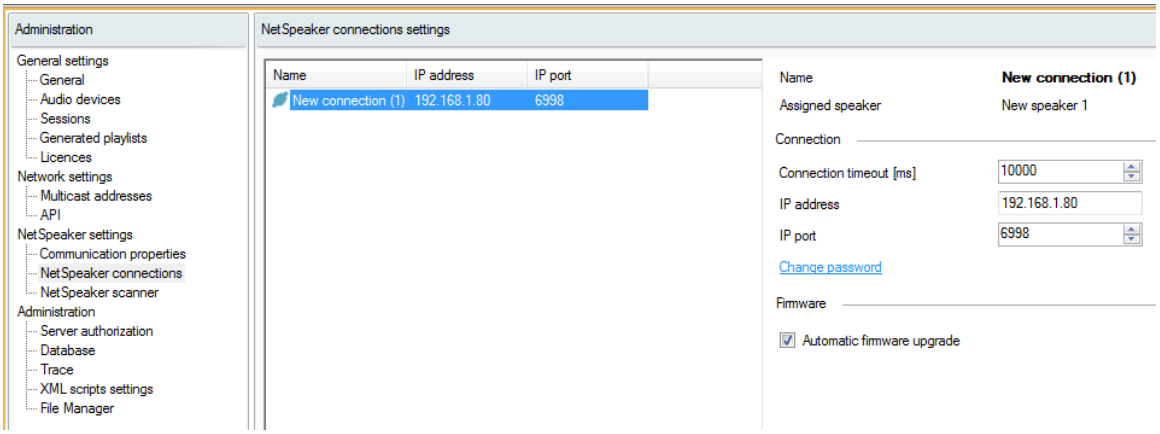


**Figure:** Connecting Passive Speaker

- Create the Zone structure and add the speakers in **NetSpeakers & Zones**.

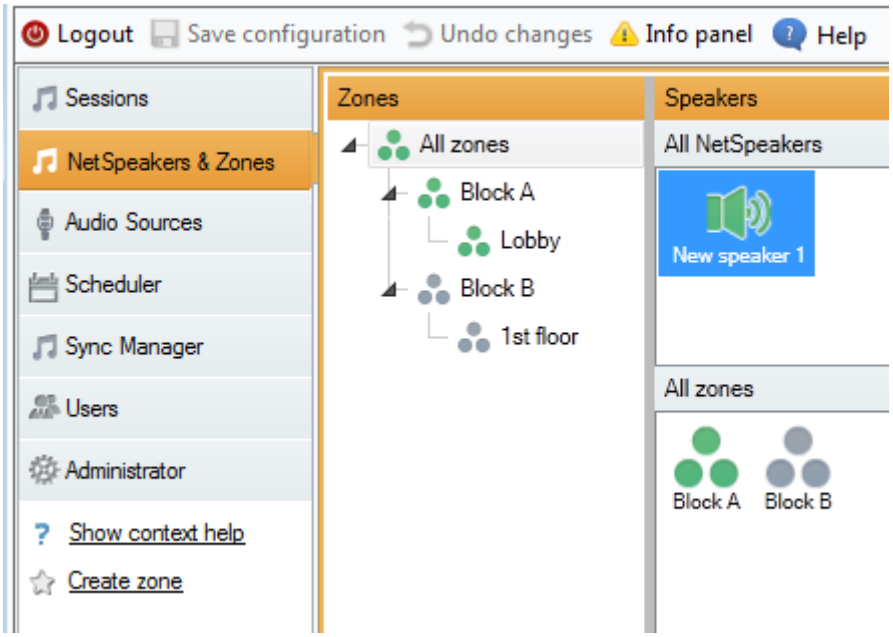


**Figure:** Adding Speaker to Zone

- Create a new source and add the audio files, a playlist, e.g., in **Audio Sources**.
- Create a new session and add a playlist and Zone to the session using the drag&drop function in **Sessions**.

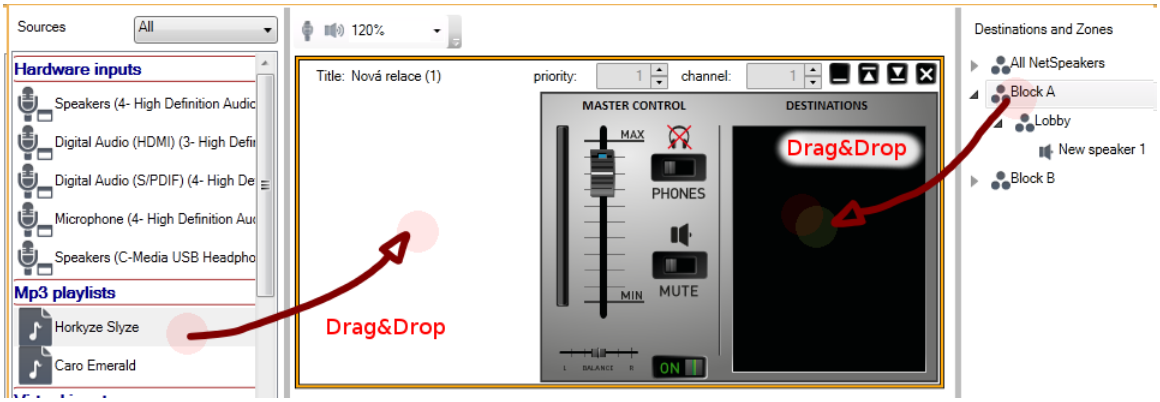


**Figure:** Creating Session

- Push the **ON** button to activate the session and start playing.

# HW Configuration Manual

**2N® NetSpeaker** Components

**Figure:** 2N NetSpeaker – Basic Unit 914010E 2N® NetSpeaker with Amplifier

**Accessories:**

- PoE Injector 91378100
- 12V DC/2A Adapter 914102E
- Remote Controller 914101E

## Description and Installation

### Product Description

**2N® NetSpeaker** is a LAN audio converter designed for public sound distribution through the **2N® NetSpeaker** System. It is connected to the **2N® NetSpeaker** Syste m via the local area network (LAN). It communicates with the **2N® NetSpeaker Server**, receives the audio stream, decodes it and converts it into an analogue signal. **2N® NetSpeaker** is equipped with an integrated 14W amplifier for direct loudspeaker connection. **2N® NetSpeaker** can be controlled by two front panel buttons or an infrared remote controller. **2N® NetSpeaker** is equipped with a digital input and output, which extend the converter options and may be helpful in special applications. **2N® NetSpeaker** helps you extend the internal FLASH memory using MicroSD memory cards. Use the integrated Telnet server to make basic settings for connection of **2N® NetSpeaker** into the LAN (refer to the Basic Parameter Settings). Apply the **2N® NetSpeaker** Software for configuration and use of all functions (refer to the **2N® NetSpeaker** Software User Manual).

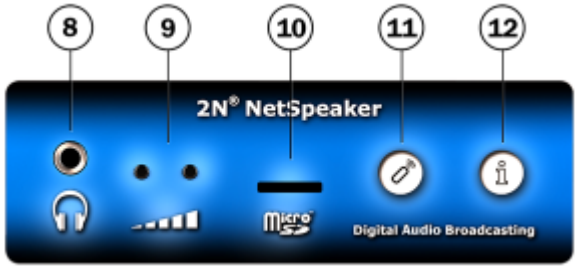


**Figure:** 2N® NetSpeaker Front Panel

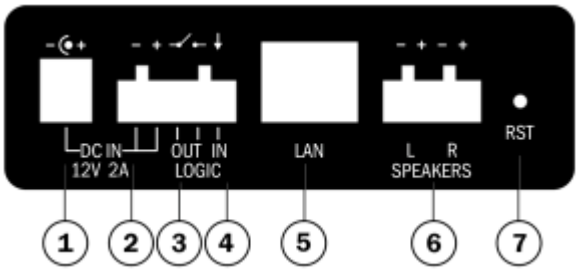


**Figure:** 2N® NetSpeaker Back Panel

1. 12V DC/2A power supply adapter connector
2. Alternative power supply connection terminals
3. Relay output with galvanic isolation for external 24V/1A AC/DC load switching
4. Digital input (without galvanic isolation) for external sensor/button, etc.
5. 10/100BASE–TX LAN RJ–45 connector
6. Integrated amplifier output terminals for 1 or 2 loudspeakers
7. RESET button
8. Headphone/line output for standard headphones/external amplifier
9. Universal buttons with programmable functions
10. MicroSD card slot for higher internal memory capacity
11. Operational status colour LED indicators
12. Infrared signal receiver for remote control

## 2N® NetSpeaker Parameters

| Parameter | Value |
|---|---|
| **Dimensions** | 105 x 34 x 86 mm |
| **Dimensions (incl. L–profiles)** | 130 x 34 x 86 mm |
| **Weight** | 300 g |

| | |
|---|---|
| **External power supply** | 12V DC / 2A |
| **LAN supply** | PoE IEEE 802.3af |

| | |
|---|---|
| **Status signalling** | 1 RGB LED on front panel |
| **Local control** | 2 buttons on front panel |
| **Remote control** | 1 infrared sensor on front panel |

| | | |
|---|---|---|
| **LAN connection** | RJ–45 connector on back panel | TX with Auto–MDIX function |
| **Power amplifier output** | 4 terminals on back panel | STEREO/MONO with auto detection |

| | |
|---|---|
| **Frequency range** | 20Hz – 20kHz (+/– 0.5dB) |
| **Harmonic distortion** | 0.05% @ 1kHz |
| **Signal–to–noise ratio** | 91dB |

| | |
|---|---|
| **Headphone/Line output** | STEREO 3.5mm jack on front panel |

| | |
|---|---|
| **Digital output** | 24V 1A AC/DC relay output, galvanically isolated |
| **Digital input** | 5 to 24V DC digital input, galvanically non–isolated |

| | |
|---|---|
| **Memory capacity extension** | MicroSD card slot on front panel |

| | |
|---|---|
| **Sound compression** | MPEG–2 Audio Layer III (MP3) |
| **Bandwidth** | 32–320kbps |

**Caution:** Be sure to connect the **2N® NetSpeaker** power supply as the last step. The same applies to PoE supply from the LAN.

## Installation

If you intend to use your **2N® NetSpeaker** unit in various interiors, please stick the four feet included in the delivery onto the bottom side of the device to avoid scratching of the underlying surface.

**Surface Mounting:**

Use the included L–profiles to mount your **2N® NetSpeaker** unit on a wall or another solid surface. Insert the L–profiles in the sides of the assembly and fit them with four screws to keep the device in place. You can use the dowels and screws included in the delivery. Follow the instructions below while drilling the mounting holes.

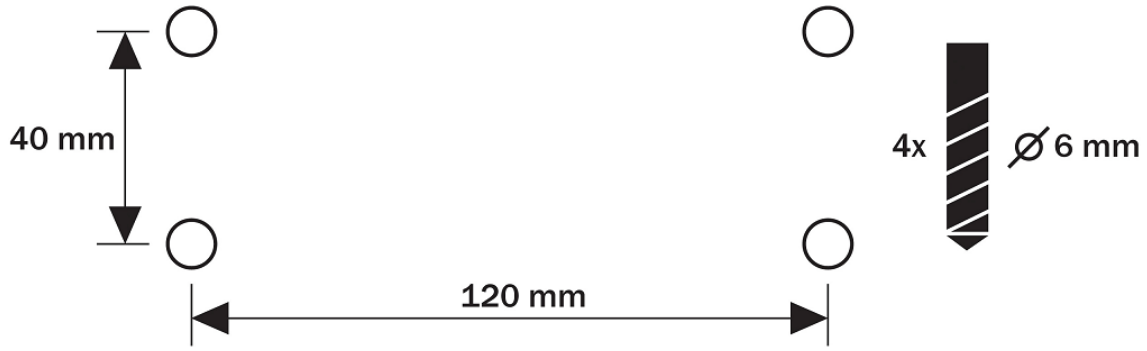


**Figure:** Mounting holes

- Electric Installation
- Electric Installation Step by Step

It is very easy to connect **2N® NetSpeaker** electrically. Follow the steps below to avoid equipment damage or electrical injury:

1. Connect a loudspeaker, headphones or an external amplifier.
2. Connect the digital input and output.
3. Insert the MicroSD card.
4. Connect the UTP cable.
5. Connect a 12V power supply (unless PoE is used).

## Loudspeakers

### Loudspeaker connection

**2N® NetSpeaker** is equipped with a power amplifier for 1 (MONO) or 2 (STEREO) loudspeakers. The loudspeakers to be used must have the nominal impedance of 4–16Ohm. Possible configurations and related maximum power outputs (sinus, THD < 1%) are included in the table below:

| **Loudspeaker** | 12V/2A Supply | PoE Supply |
|---|---|---|
| **2 x 4Ohm STEREO** | 2 x 2.5W | 2 x 2.5W |
| **2 x 8Ohm STEREO** | 2 x 7W | 2 x 4W |
| **2 x 16Ohm STEREO** | 2 x 4W | 2 x 4W |
| **4Ohm MONO** | 1 x 14W | 1 x 8W |
| **8Ohm MONO** | 1 x 8W | 1 x 8W |

Use the **2N® NetSpeaker** back panel terminals marked L + and L – for the left channel and R + and R – for the right channel. Use the left channel terminals for the MONO mode.

### Headphone/External amplifier connection

**2N® NetSpeaker** is equipped with a headphone/external amplifier connector. The 3.5mm jack is available on the front panel.

## Digital Input and Output

**2N® NetSpeaker** is equipped with a relay switch for light signalling/external amplifier/alarm/activation. The **output** is available on terminals marked LOGIC OUT and allows for switching of up to 24V/1A AC/DC loads. Program the output either to the N/O (normally open) or N/C (normally closed) mode.

**Warning** Do not exceed the upper voltage and current limits to avoid irreversible damage of the equipment.

**2N® NetSpeaker** is equipped with a digital **input** for an optional button, sensor of movement or other applications. This input is available on the LOGIC IN terminal. Up to 5 to 24V DC voltage can be applied to the input against the ground terminal marked DC IN –.

**Warning** Do not exceed the maximum voltage values (24V) applied to the LOGIC IN input to avoid irreversible damage of the equipment.

Note

### Memory Card

**2N® NetSpeaker** is equipped with a MicroSD card slot for storing music or voice in case the equipment is not connected to the LAN permanently or temporarily. The MicroSD card slot is available on the **2N® NetSpeaker** front panel.

## 2N® NetSpeaker Connection and Configuration

### Power Supply Connection

**2N® NetSpeaker** can be connected to a standard local area network using a LAN interface via the RJ–45 connector on the back panel. Always use CAT–5d or higher class cables for reliability reasons. The LAN interface is equipped with the Auto MDIX function for automatic detection of a straight or cross–over cable.

The LAN interface can also be used for the **2N® NetSpeaker** power supply through active network elements or injectors meeting the IEEE 802.3af standard.

**Note:** With PoE, the integrated amplifier power output is limited to 8W. To utilise the maximum power output of the amplifier, feed **2N® NetSpeaker** from an external 12V DC/2A power supply.

**2N® NetSpeaker** can be fed using active network elements or PoE injectors via the LAN interface. In case this option is unavailable, use a 12V DC/2A (Part No. 914102E) power supply, or another power supply on condition that you keep the nominal values included in the Electric Parameters subsection.

Connect the 12V DC power supply either to the back panel supply connector marked DC IN, or terminals marked DC IN + and DC IN –.

**Warning** If you use an adapter other than the recommended one, do not exceed the nominal supply voltage value of 12V. Also make sure that the supply voltage polarity is correct. Exceeding nominal values and/or incorrect connection may lead to irreversible damage of the equipment.

### 2N® NetSpeaker Configuration

In some cases, it may be useful to reset the **2N® NetSpeaker** factory values using the RESET button on the back panel. Do this, for example, if **2N® NetSpeaker** ceases to respond, which may be caused by incorrect LAN settings, LAN configuration changes, forgotten password and so on.

**Resetting Procedure:**

1. Use a thin rigid tool (a toothpick or a paperclip) to press the RESET button on the back panel.
2. Keep the RESET button pressed as long as the front panel LED is shining green (approx. for 10s).
3. Release the button as soon as the LED starts flashing yellow quickly. It means that the configuration in the internal FLASH memory is being deleted.

This operation takes about 50s. Do not disconnect the device from power supply during this period.

**Factory Settings:**

By default, the parameters have the following factory values:

| Parameter Name | Default Value |
|---|---|
| activemode | 1 (ON) |
| searchmode | 1 (ON) |
| volume | 1024 |
| domain | |
| dscr | MAC address |
| dhcpclient | 1 (ON) |
| ipaddr | 192.168.1.100 |
| netmask | 255.255.255.0 |
| defaultgw | 192.168.1.1 |
| pwd | |
| srvipaddr | 192.168.1.2 |
| srvport | 6999 |
| srvpwd | |

## Basic parameter settings

Use the integrated Telnet server for basic **2N® NetSpeaker** settings. For connection, use any Telnet Client application downloaded from the Internet, for example. The Telnet server listens at standard port 23.

When the connection has been established, **2N® NetSpeaker** displays its serial number and the current firmware version. Enter the password, which is equal to the connection authorisation password from the **2N® NetSpeaker Server** (i.e. pwd parameter). The default password is admin.

Telnet Commands to **2N® NetSpeaker**

**2N® NetSpeaker** can be controlled using the commands included in the table below. Enter LC characters only, separate parameters, if any, with a space and confirm every row with Enter.

| | |
|---|---|
| **help** | This command displays the list of available commands |
| **set (parameter)(value)** | This command sets the parameter to a selected value. Example: set dhcpclient 1 |
| **get (parameter)** | This command displays the current parameter value. Example: get dhcpclient |
| **print** | This command writes out all parameters including values. |
| **save** | This command saves all parameters changes into the 2N® NetSpeaker memory. |
| **exit** | This command quits connection with the Telnet server. |
| **reboot** | This command resets the equipment. |

### List of parameters

- activemode
  - **2N® NetSpeaker** is connecting actively to the **2N® NetSpeaker Server**. Remember to set the srvipadr and srvport parameters correctly if 1 is selected.
  - Setting options

| | |
|---|---|
| **0** | **2N® NetSpeaker** passive mode. The server connection is initiated by the **2N® NetSpeaker Server**. |
| **1** | **2N® NetSpeaker** active mode. The server connection is initiated by **2N® NetSpeaker**. |

  - Default setting: 1
- searchmode
  - **2N® NetSpeaker** is searching for **2N® NetSpeaker Server** in network and use Server's domain.
  - Setting options:

| | |
|---|---|
| **0** | Searchmode is disabled |
| **1** | Searchmode is enabled |

  - Default setting: 1
- volume
  - Settings of volume for **2N® NetSpeaker** where value 0 is minimum and 4096 is maximum.
  - Default setting: 1024
- domain
  - Settings of domain which is used by **2N® NetSpeaker** for communication.
  - Default setting:
- descr
  - Descr is voluntary parameter describing **2N® NetSpeaker**. It is possible to use any string.
  - Default setting: MAC address
- dhcpclient: This parameter enables/disables automatic obtaining network parameter settings from the DHCP server in the LAN.
  - Setting options:

| | |
|---|---|
| **0** | Automatic network parameter obtaining is disabled. Use manual settings: ipaddr, netmask and defaultgw. |
| **1** | Automatic network parameter obtaining is enabled. |

  - Default setting: 0
- ipaddr
  - **2N® NetSpeaker** static IP address. Use this setting if dhcpclient is set to 0.
  - Default setting: 192.168.1.100

- netmask
  - Network mask for static IP address setting. Use this setting if dhcpclient is set to 0.
  - Default setting: 255.255.255.0
- defaultgw
  - Default gateway for packets routed outside the LAN. Use this setting if dhcpclient is set to 0.
  - Default setting: 192.168.1.1
- pwd
  - **2N® NetSpeaker's** own password for authorising connection initiated by the **2N® NetSpeaker Server**. The same password must be stored in the **2N® NetSpeaker Server** global settings and must be identical for all **2N® NetSpeaker** units in the system. This password is used for Telnet server connection authorisation too.
  - Default setting: admin
- srvipaddr
  - **2N® NetSpeaker Server** IP address. Use the setting in the active mode, i.e. if activemode=1.
  - Default setting: 192.168.1.1
- srvport
  - **2N® NetSpeaker Server** communication port. Use the setting in the active mode, i.e. if activemode=1.
  - Default setting: 6999
- srvpwd
  - **2N® NetSpeaker Server** connection authorisation password. Used both in the active and passive modes of **2N® NetSpeaker**. The password must be identical with the **2N® NetSpeaker Server** password.
  - Default setting: admin

### Firmware upgrade

**2N® NetSpeaker** firmware upgrade runs automatically whenever **2N® NetSpeaker** g ets connected to the **2N® NetSpeaker Server**. This guarantees that all connected devices have identical and latest firmware versions. Refer to www.2n.cz for the latest firmware version.

# Manual for Control Panel software (Server Administration)

2N® IP Audio Control Panel is user friendly software used for administration of all features of 2N® IP Audio System.

In this section:


- Sessions
- NetSpeakers & Zones
- Audio Sources
- Scheduler
- Sync Manager
- Users
- Administrator

# Sessions

**What you should know**

- Sources can be type–filtered in the **Input sources** header.
- Upon power up, the server automatically launches and starts playing all sessions that were active before power off.
- Higher priority of the active Session **always guarantees** that this Session will occupy all Destinations assigned to it.
- The last–created Freeride session has the highest priority = is playing.

## Sessions

The session determines the **Source** – **Destination** connection, i.e. defines which source will be played to which destination. The left session part defines and helps control the source, the right session part determines the destination and **Session** optio ns.

### Session Creation and Preparation for Playing

Click on Session –> Create empty session to create a session. You can perform this and other actions by retrieving the floating menu by the right mouse–click.

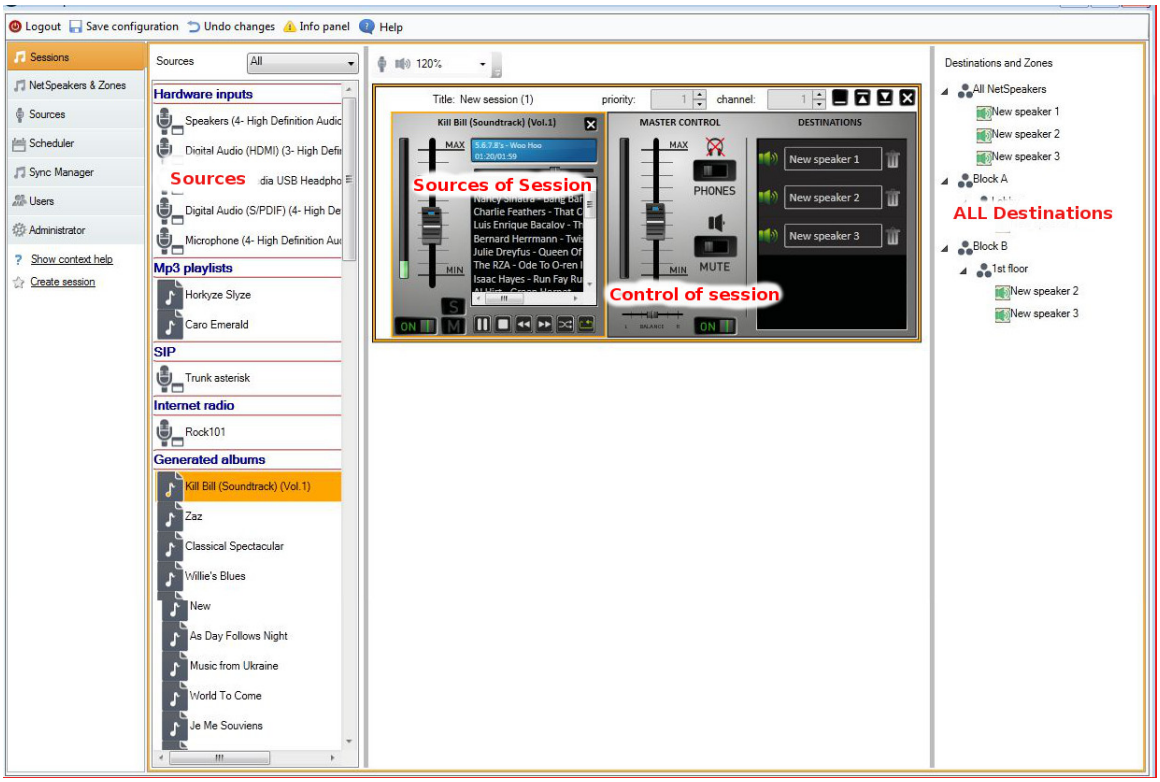


**Figure:** Session Window Layout

Use **Drag&drop** to add a source included in the source list to the session and a destination to the destination list – **Destination targets**. Whether you add destinations by speakers or zones, the resultant functionality will be the same.

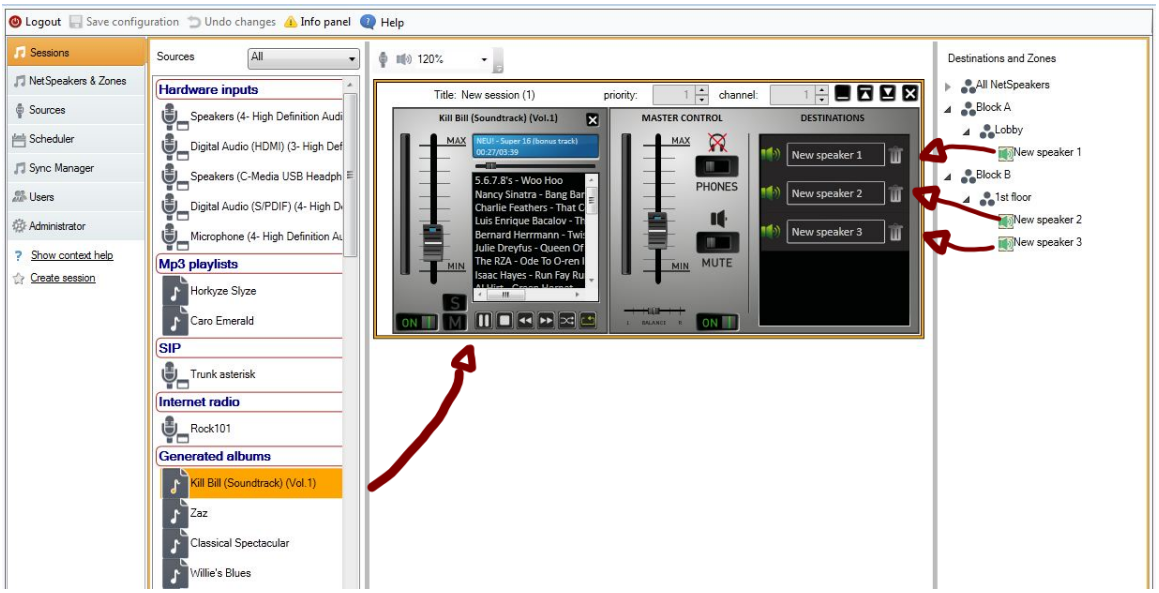


**Figure:** Adding of Sources and Destinations to Session

The created session is ready for broadcasting to destination(s). If no more parameters are needed, simply press **PLAY** and the added Sessions or another source will start playing. Fig.5 shows two types of sources. The common bar contains volume control settings.

## Session Control and Launch

Click on **ON** in the Session control section to launch a session; refer to Fig. 3. Fig.3 also shows additional session controls.

- **Balance** – set balance for the right/left channel.
- **Listening in** – enable this parameter to listen to remote destinations locally.
- **Volume** – set the main session volume.
- **Sound activation/deactivation** – enable/disable sound for the active session.

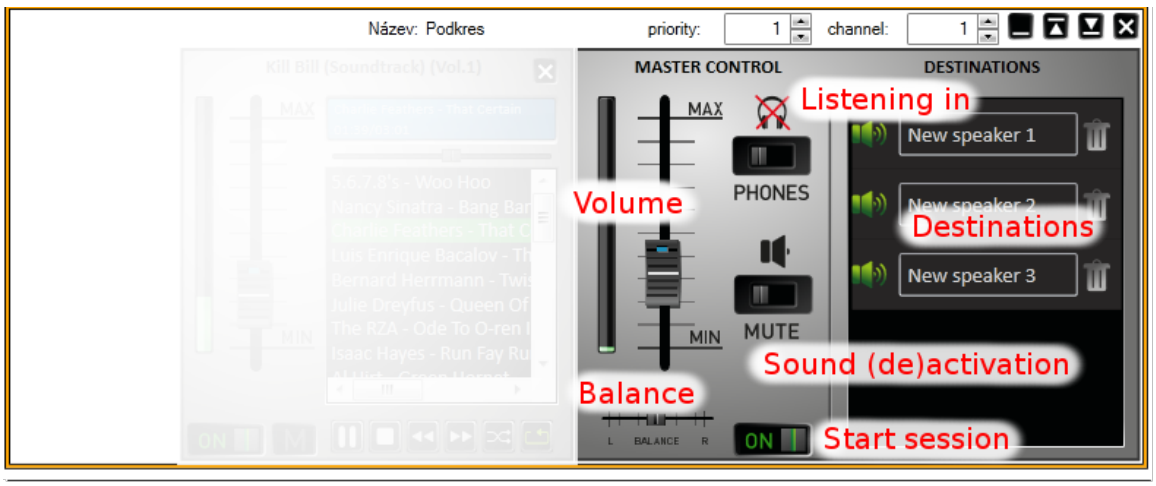


**Figure:** Session Control

### Additional Session Setting Options

Besides the basic settings mentioned in 1.1., there are additional session settings such as Priority or Channel situated in the right–hand upper corner.

- **Priority** – set the session priority. The **highest** priority session is always preferred to lower priority sessions. A higher priority of the active Session **always guarantees** that the Session will occupy the destinations assigned to it (the source will play in the destination). The priority range is <1;10>, where priority 10 is automatically assigned to Freeride role broadcasting.
- **Channel** – set the channel for each session. 2N® NetSpeaker supports 4 channels for 4 different sources.

**Figure:** Priority and Channel Settings

## Sources

You can add multiple sources to each session. Use the source tag to create a source (refer to Sources for details). Add the sources in the **Bar** format. There are two types of bars – one is designed for the Playlist and the other for the rest of the sources. Fig.5 shows the two types.

**Figure:** Volume Bars

**Common bar** – helps you control volume, balance and sound activation/deactivation. The Internet radio contains a status line displaying information on playing.

**Playlist** – here you can, besides basic functions, control mp3 files with play/stop, pause, next, previous, shuffle and repeat. Moreover, you can minimise the playlist bar.

# NetSpeakers & Zones

**What you should know**

- Zones are logical units used for **2N® NetSpeaker** grouping.
- A zone can be added to a Session if you want to play the same music or announce news.
- **2N® NetSpeaker** with the active mode setting connects to the server automatically.
- **2N® NetSpeaker** scanner helps you administer unconnected NetSpeakers via the Administrator tag.
- Once **2N® NetSpeaker** gets connected to the server, its setting by Telnet is prohibited until Telnet is enabled in the configuration.

## NetSpeakers & Zones

This tag helps you administer **2N® NetSpeakers** by assigning them to zones and changing their parameters. The tag includes a Zones tree, a NetSpeakers panel (speakers, zones including contents) and a Zone/NetSpeaker Properties panel.

### Zones

Zones helps **divide objects logically** and assign **2N® NetSpeakers** to zones for easier handling (by assigning zones to Sessions) in extensive installations. Moreover, the zones can be regarded as **2N® NetSpeaker** groups.

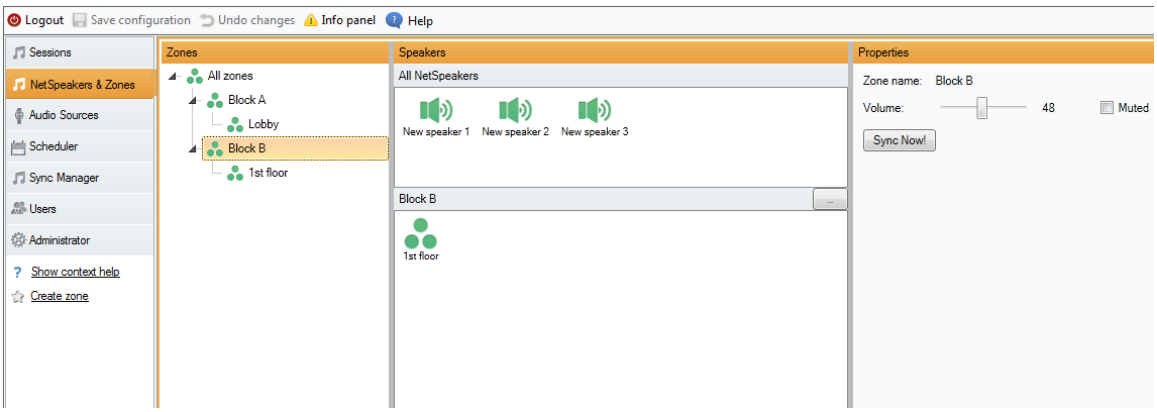


**Figure:** View of NetSpeakers & Zones Tag

To create a **Zone**, select menu –> Create subgroup* or retrieve the floating menu with the right mouse click and select Create subgroup again. Retrieve the floating menu on the **All zones** panel –> Rename to rename a zone.

Having clicked on a **Zone**, you can set the Properties for the Zone: set/switch off volume for all speakers in the zone. Click on **Sync Now!** button to launch synchronisation of all the speakers assigned to the zone.

## Loudspeakers

The Loudspeakers panel displays the **2N® NetSpeakers** to be connected as instructed in NetSpeaker Connection. Retrieve the floating menu to remove or rename a speaker.

Use the drag&drop function to move the selected speaker from the list of loudspeakers to the required zone. Again, use the drag&drop function or the floating menu –> Remove to **remove** a speaker from the zone to the loudspeaker list.

The **2N® NetSpeaker** properties are divided as follows:

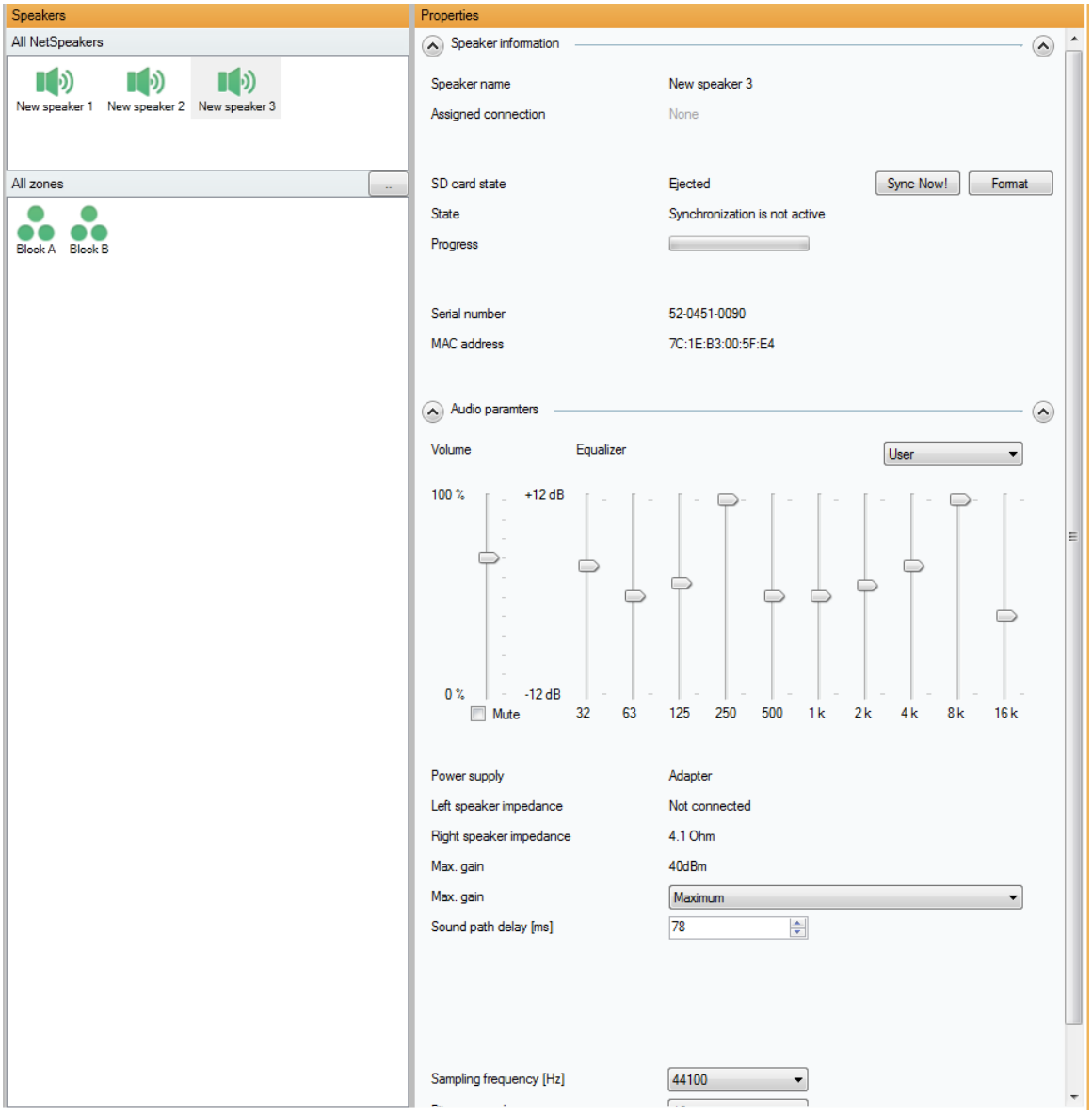


**Figure:** 2N® NetSpeaker Setting Options

## Loudspeaker information

Here find the loudspeaker name, connection if existing and synchronisation status. Click on **Sync Now!** to launch synchronisation as set in the Sync Manager tag for the current **2N® NetSpeaker** only.

**SD card state** – informs whether or not the SD card has been connected and is ok.

**State** – announces one of the following synchronisation states:

- Synchronisation is not active
- Waiting for synchronisation
- Synchronisation in progress
- Synchronisation error
- Synchronisation completed
- Ready for synchronisation
- Calculation in progress
- Synchronisation postponed

### Sound settings

This section is devoted to loudspeaker sound parameters.

- **Volume and equaliser** – use this parameter to set the loudspeaker volume. This setting will not be active until saved. Use remote control or press the 2N® NetSpeaker buttons or set volume for the whole zone to change the setting.
- **Detected parameters** – **2N® NetSpeaker** detects these parameters to inform the server of the loudspeakers and power supplies connected.
- **Maximum gain** – select a power supply and loudspeaker type to determine the maximum gain.
- **Sound path delay** – set the expected delay – buffer size – for **2N® NetSpeaker** for Wi–Fi installations or potentially unreliable packet deliveries.
- **Sampling frequency** – set the audio signal sampling frequency.
- **Bits per sample** – define the count of bits per audio signal sample.
- **Channels** – define the count of audio signal channels – stereo/mono.
- **Bit stream** – define the count of bits to be transmitted in 1s of audio signal.

### Advanced settings

- **Disable multicast** – disable multicast. Multicast is a Point–to–Multipoint transmission option, which saves the network capacities (if implemented in network elements) and server means.
- **Disable remote control** – disable remote **2N® NetSpeaker** setting.
- **Enable Telnet** – **Telnet** connection is disabled by default for security reasons upon **2N® NetSpeaker–server** connection. Select this option to enable Telnet even during **2N® NetSpeaker–server** connection. This option, however, is not recommended for security reasons.
- **Activate relay during receving** – select this option, for example, to switch on/off the external amplifier if available.
- **Channel** – set the **2N® NetSpeaker** channel.
- **Button mode** – select the HW button mode – channel switching or volume setting. Or, deactivate the buttons.

# Audio Sources

**What you should know**

- It **is necessary to assign** the created working source (SIP, Playlist, Microphone..) to a session in the Sessions menu to define where the contents should be played.
- **2N® NetSpeaker** supports several types of input sources for specific applications.
- The HW sources are based on the **server PC** sound card. External sound cards can be used too.

## Audio Sources

### Hardware Inputs

HW inputs are inputs of your server – PC on which the **2N® NetSpeaker** Server is running; refer to the system architecture in Introduction. A microphone, internal/external sound card and/or mixer are used for playing locally stored music using a standard audio player.

### Playlist

### Playlist defined by user

This is a classic principle of playlist creation in common music players. To create a new playlist, move the selected .mp3 .wma ... files to the right–hand window section (for the new playlist). You can select more files than one.

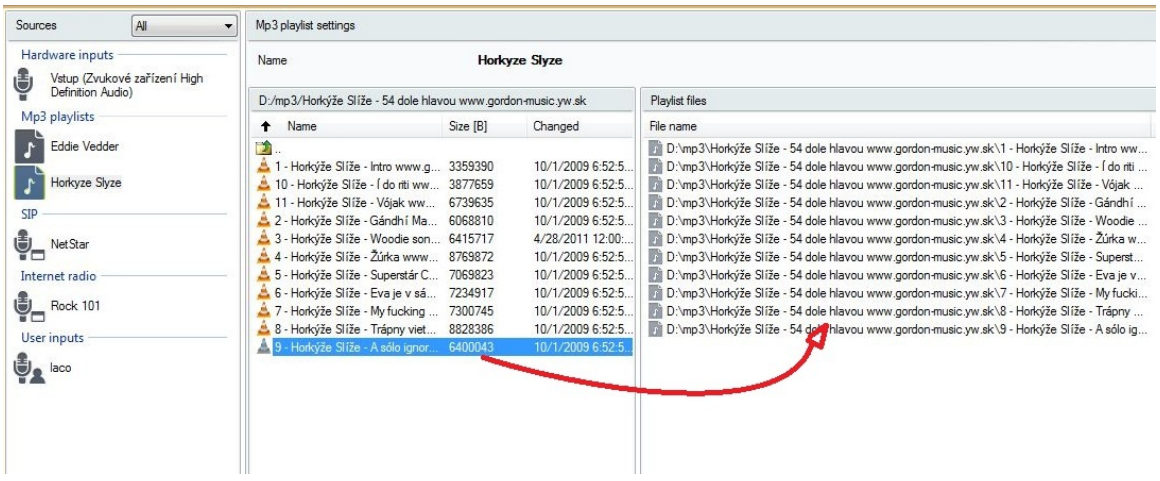


**Figure:** Adding of Audio Files to Playlist

To add files from a PC other than that on which the server is running to the new

playlist, use the "Add server" option. Thus, you move the file from your PC to the server PC and play the file on the server PC even if your PC (Control Panel) is disconnected.

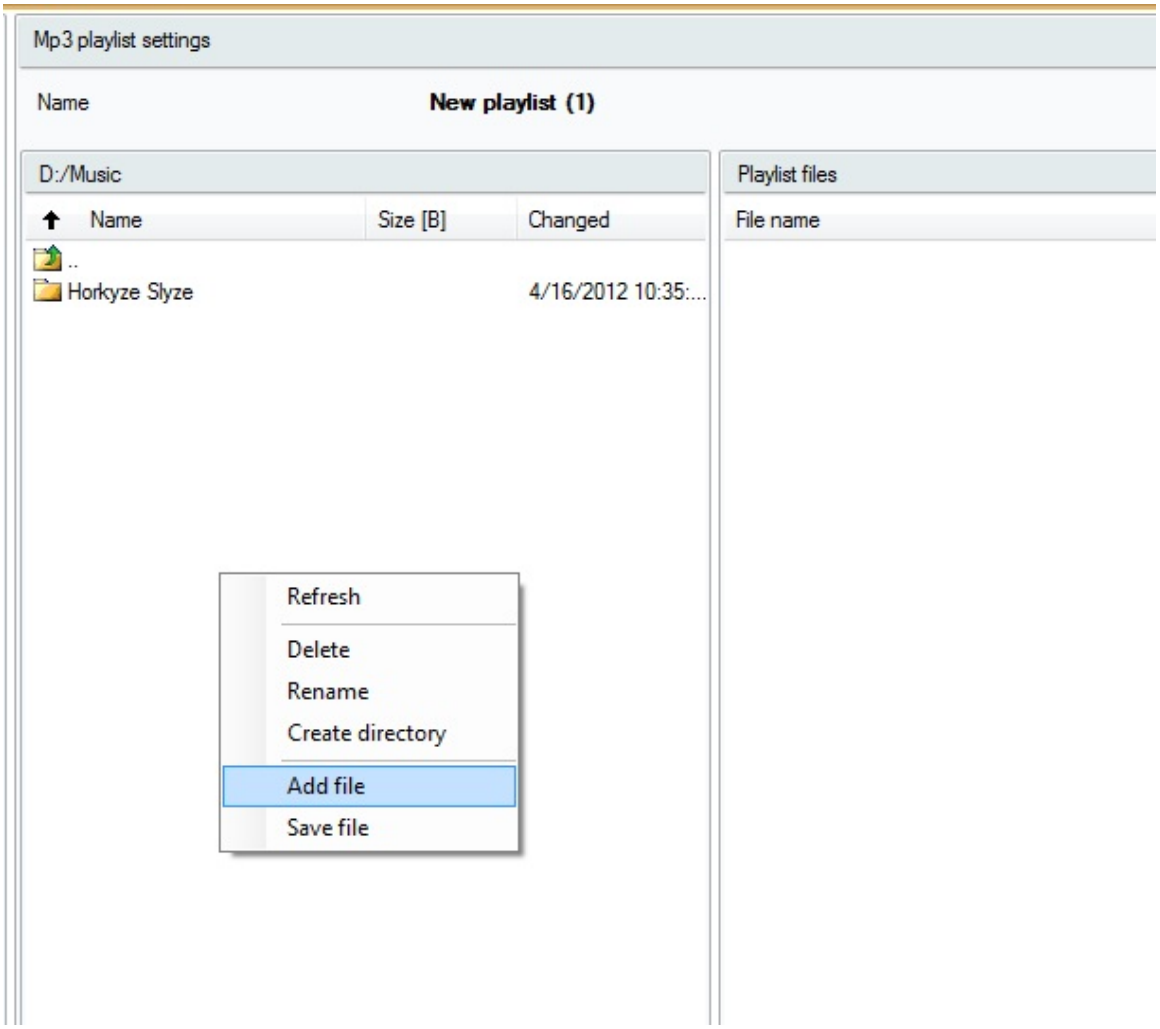


**Figure:** Import of Audio Files to Server

## Generated playlists

Generated playlists are playlists that are created by the ControlPanel automatically from the selected directory according to selected rules. Generated playlists are created via the Administrator tag. Refer to the **Audio sources** tag for the playlist items.

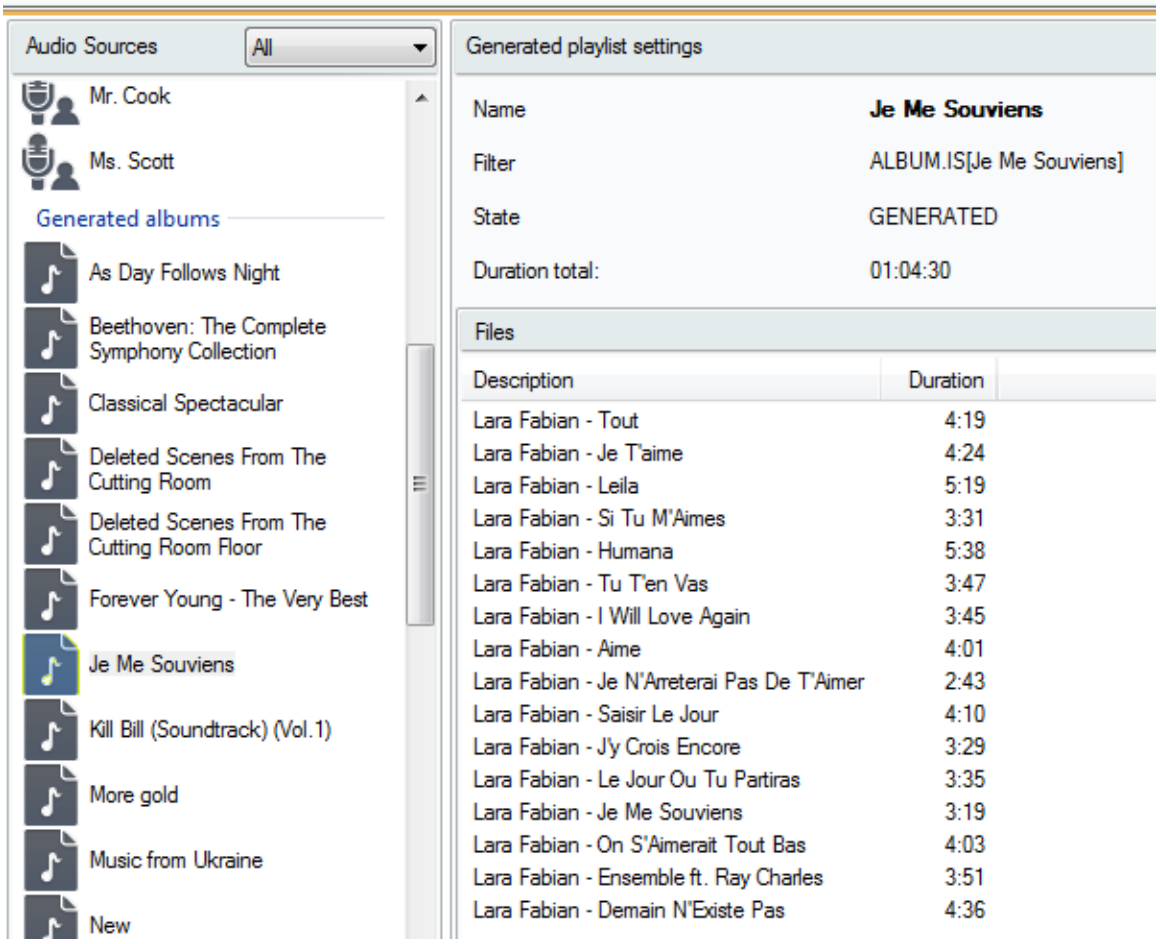
Audio Sources
All
Mr. Cook
Ms. Scott
Generated albums
As Day Follows Night
Beethoven: The Complete Symphony Collection
Classical Spectacular
Deleted Scenes From The Cutting Room
Deleted Scenes From The Cutting Room Floor
Forever Young - The Very Best
Je Me Souviens
Kill Bill (Soundtrack) (Vol.1)
More gold
Music from Ukraine
New
Generated playlist settings
Name
Je Me Souviens
Filter
ALBUM.IS[Je Me Souviens]
State
GENERATED
Duration total:
01:04:30
Files
Description
Duration
Lara Fabian - Tout 4:19
Lara Fabian - Je T'aime 4:24
Lara Fabian - Leila 5:19
Lara Fabian - Si Tu M'Aimes 3:31
Lara Fabian - Humana 5:38
Lara Fabian - Tu T'en Vas 3:47
Lara Fabian - I Will Love Again 3:45
Lara Fabian - Aime 4:01
Lara Fabian - Je N'Arreterai Pas De T'Aimer 2:43
Lara Fabian - Saisir Le Jour 4:10
Lara Fabian - J'y Crois Encore 3:29
Lara Fabian - Le Jour Ou Tu Partiras 3:35
Lara Fabian - Je Me Souviens 3:19
Lara Fabian - On S'Aimerait Tout Bas 4:03
Lara Fabian - Ensemble ft. Ray Charles 3:51
Lara Fabian - Demain N'Existe Pas 4:36

**Figure:** Generated Playlists

This way, you can fill the server with mp3 files even remotely via the WAN.

## Virtual Input

Virtual input is a group of rules rather than an actual input. The rules define users with the right to use the input and also assign inputs to rooms if necessary.

**Example:** Suppose a language school has English and German classrooms. There are 4 teachers in the school: Mr. Cook, Ms. Scott, Hr. Himmel and Fr. Moselle. Use the virtual input to create **English classroom input** and **German classroom input**.

- Enable the "English classroom" virtual input for Mr. Cook and Ms. Scott.
- Enable the "German classroom" virtual input for Hr. Himmel and Fr. Moselle.

Doing this, you have created the possibility to play audio in the classrooms and let the teachers simply choose classrooms using the Console tool.

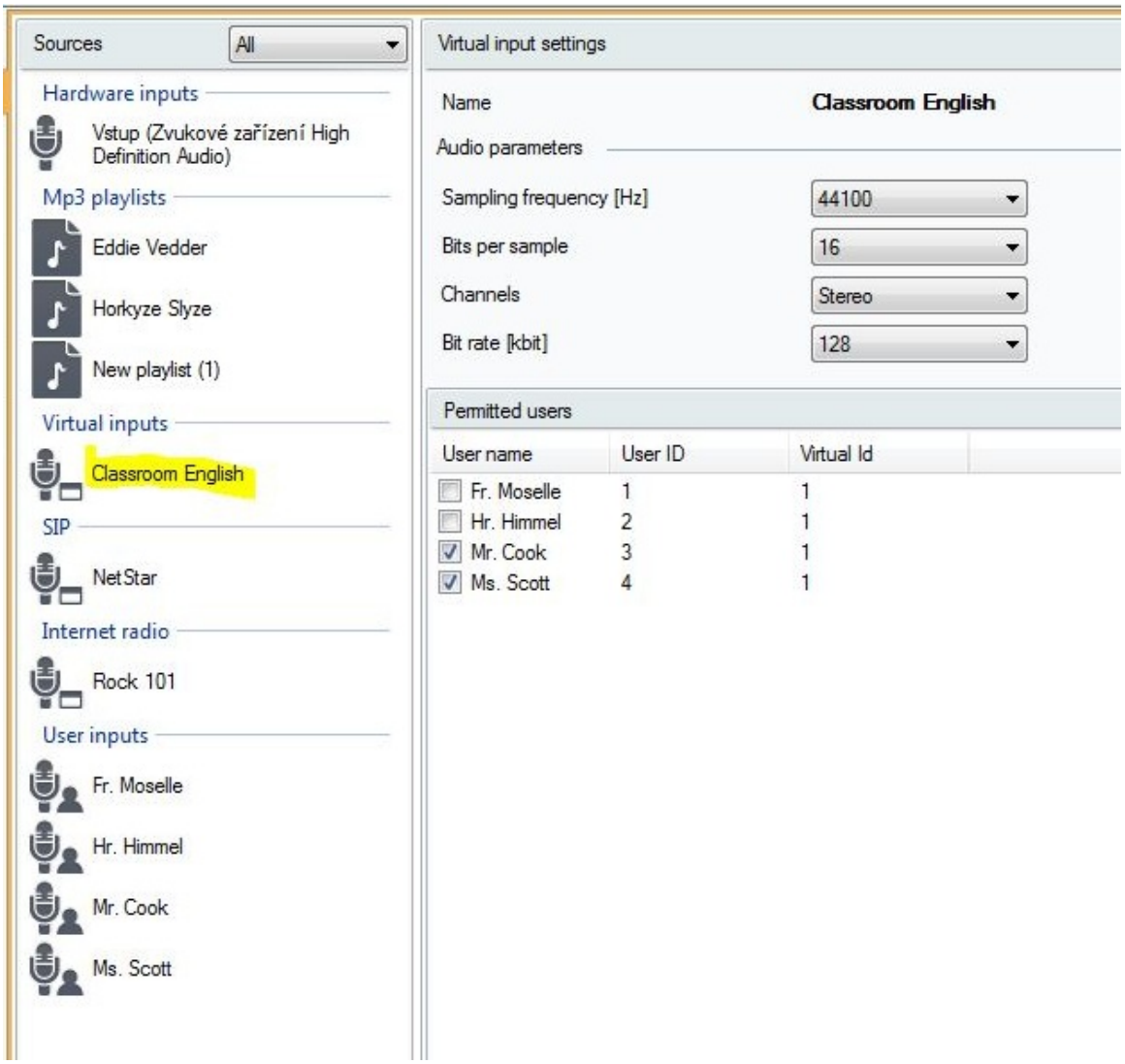


**Figure:** Adding of English Teachers to Virtual Input

## SIP Port

The SIP source helps you connect **2N® NetSpeaker** to a VoIP (Voice over IP) PBX as a VoIP station via the SIP. You have to know the PBX IP address, username and password (if requested) and the port to establish connection to the PBX. Refer to the subsections below for the parameters and setting options.

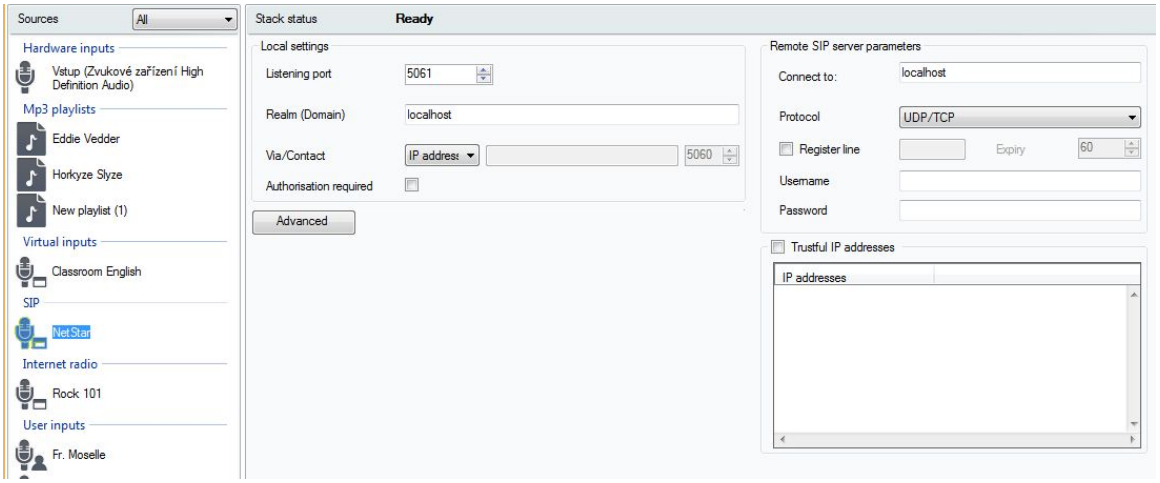


**Figure:** SIP Source Setting

## Source status

Refer to the upper menu section for information on the stack (communication protocol) type and current status.

- **SOCK_TCP_ERROR** – TCP socket failed to open.
- **SOCK_UDP_ERROR** – UDP socket failed to open.
- **CREDS_IN_ERROR** – authorisation server unavailable.
- **CREDS_OUT_ERROR** – authorisation client unavailable.
- **REALM_CONFLICT** – realm collides with another port's realm/alias.
- **STUNNING** – public address obtaining from STUN server in progress.
- **STUN_TIMEOUT** – STUN server inaccessible.
- **EXPIRED** – public address validity expired.
- **SIP_REGISTERING** – gateway registration in progress.
- **REG_TIMEOUT** – REGISTRAR server inaccessible.
- **REG_NOT_AUTH** – registration unauthorised.
- **REG_REJECTED** – registration rejected with error.

### Basic parameters

- **Port** – is a local port of NetSpeaker Server on which the given gateway is communicating with the counterparty.
- **Realm(Domain)** – define the domain over which this gateway is communicating. The domain and port specified here are relevant for subsequent call routing to the NetSpeaker Server. The Request–URI field including Realm(Domain) + port are checked for incoming INVITE messages. If the values match the SIP GW setting, the packets are routed to the NetSpeaker Server. The INVITE messages are served too whose Request–URI values are included in the **Aliases** field.
- **Via/Contact header** – define the contents of the Via and Contact headers. The following options are available:
- **Connect to** – fill in the unique PBX IP address.
- **FQDM** – the header includes the PBX Host Name, which can be filled on the PBX IP interface.
- **NAT** – fill in the fixed public IP address and NAT port to which signalling messages for the PBX should be sent by the counterparty. Packets are routed to the PBX based on the set port routing IP address on the router.
- **STUN** – fill in the STUN server address and port to identify the current address behind the NAT router.
- **Requires authorisation** – activate authorisation request for incoming calls from the counterparty. User login data are used for call authorisation. All logins are always searched through.
- **Transmit busy tone** – enable transmission of the busy tone from the PBX or network when the counterparty hangs up.

### Remote SIP server parameters

- **Address** – set the IP address or DNS name of the counterparty (operator or another PBX) to which you want to connect the PBX via a trunk (where call and registration requests shall be routed). To use a port other than 5060, specify the port behind the colon (192.168.122.43:5071).
- **Protocol** – specify whether UDP and/or TCP shall be used for transmission. If you choose NAPTR (Name Authority PoinTeR), a query to the DNS is made first and, depending on the reply, the proper transmission protocol is set. The **Use DNS SRV** parameter can be used with this setting and suitable DNS only.
- **Register line** – enable registration with the counterparty and specify the gateway registration number (Caller ID). No call setup requests can be resent to an unregistered gateway.
- **Validity** – set the registration validity term. The resultant value can be defined by the counterparty (if shorter).

### Authorisation data

- **Name** – user name for registration with the counterparty.
- **Password** – password for registration with the counterparty.

### IP filter

The parameter helps secure the NetSpeaker Server against undesired call attempts via the given SIP Gateway. Tick off this option to make the PBX process only the requests coming from trustworthy IP addresses included in the list. Add, remove or modify an IP address to/in the list using the buttons to the right of the IP address list or the context menu retrieved in the IP address list with the right–hand mouse button.

### Other parameters – SIP

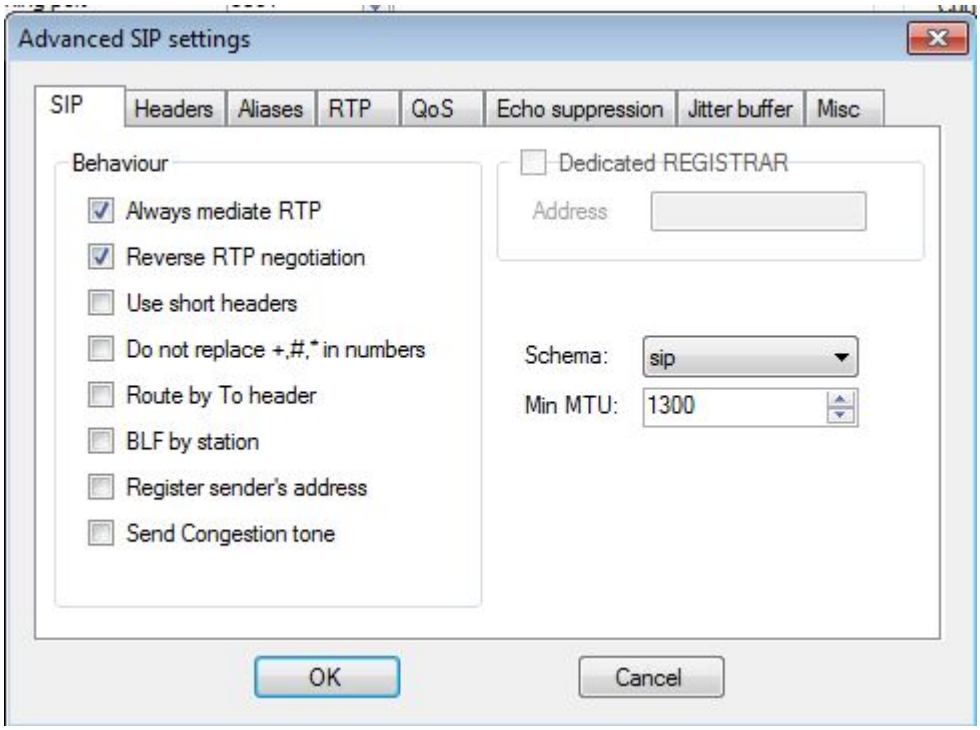


**Figure:** Other Parameters

- **Always mediate RTP** – enable this parameter to route the RTP stream via the PBX VoIP card in all cases. Otherwise, the RTP stream might be routed outside the PBX (for VoIP – VoIP connections) and the PBX processes only signalling for such a call.
- **Reverse RTP negotiation** – tick off this option to set the codec negotiating method. If you do not tick off this option, the PBX offers codecs in the INVITE message.
- **Use short headers** – tick off this option to use abbreviated header items for outgoing SIP packets. Example: From = f, To = t, Via = v. This optimisation helps minimise data to be transmitted.
- **Do not replace +,#,* in numbers** – if you do not tick off this option, the above mentioned characters will be replaced with adequate strings %xx in numbers. Tick off the option to send the characters.
- **Route by To header** – if you tick off the option, incoming call routing on the port will obey the **To** header setting. Otherwise (and by default!), **calls are**

**routed by the Request URI header**.

- **Dedicated Registrar** – is used for the gateway only and helps route registration to another server.
- **Address** – IP address of the selected Registrar server.
- **Port** – port of the selected Registrar server.
- **Scheme** – set the **sip** or **tel** scheme in the "To" and "From" headers of the SIP. **tel** is used for networks based on the numbering plan according to recommendation E.164.
- **Min. MTU** – set the minimum packet length for obligatory use of TCP in the UDP&TCP mode. The recommended maximum value is 1448 bytes.

### Headers

- **Complete domain** – specify the domain to be used within the **From** and **To** headers.
- **Send information** – **P–Asserted–Identity** – activate the P–Asserted–Identity header for the INVITE message. This header is used for CLIR transmission to the counterparty, giving it information on the calling number even in the case of active CLIR (Calling Line Identification Restriction). By default, the header is enabled on the SIP Gateway and disabled on the SIP Proxy.

### Aliases

Use this option to specify additional Realms(Domains) to be accepted on this port. Such incoming calls (their INVITEs) will be routed to this port whose Request–URIs match the given SIP GW or SIP Proxy settings and Domains or Aliases.

### RTP

- **DSP**– here you can optimise data to be transmitted. Packets are not sent while the user is not speaking. VAD stands for Voice Activity Detection.
  - **Disabled VAD**
  - **VAD acc. to G.729 Annex B**
  - **VAD light**
- **Generate comfort noise** – enable comfort noise generating. As users of classic analogue lines are used to some background noise, this option simulates similar call impression to them.
- **Mask lost packets** – enable optimised computing of probable contents of lost packets.

### QoS

The **TOS/DiffServ** section helps you set outgoing packet parameters which define the packet priority for processing by network elements.

- **SIP** – hexadecimal priority value for SIP packets.
- **RTP** – hexadecimal priority value for RTP packets.
- **Default values** – restore the default values for the two parameters.

### Echo suppression

Use this tag to activate various echo cancelling methods.

- **Suppression disabled**
- **Profile G.168 8 ms**
- **Profile G.168 16 ms**
- **Profile G.168 32 ms**
- **Profile G.168 64 ms**
- **Profile G.168 128 ms**

- **Delay [ms]**
- **Adaptive suppression**
- **Non–linear processing**
- **Reuse of coefficients**
- **Automatic control**
- **Jitter buffer**

Set the parameters in this tag to optimise packet delay fluctuation during network passage.

- **Delay [ms]**
- **Depth [ms]**

## Automatic adaptation

- **Short adaptation parameters**
- **Low [ms]**
- **High [ms]**
- **Threshold**

### Miscellaneous

- **Receive marks in call**
  - **Mode** – set the supported DTMF receiving mode for calls.
- **Send marks by INFO method**
  - **DTMF** – select one of the two DTMF sending modes using the SIP INFO method. The modes have different formats of the DTMF transmitting message.
- **KeepAlive**
  - **Period** – define the KeepAlive packet sending interval. The default value is 10s.
- **STUN server**

The STUN server helps NAT clients (i.e. PCs behind the firewall) set up telephone calls with the VoIP provider hosted outside the LAN.

- **Address** – complete the STUN server address (IP or domain name) to be used if the STUN IP method is selected in the port RTP interface configuration. The default value is **stunserver.org**.
- **Port** – set the port to be used for STUN. The default value is **port 3478**.

### Internet Radio

The Internet radio source allows you to insert URI of the selected radio and set radio delay (in ms) – characterises the radio buffer size. Radios in the mp3 format are supported only.

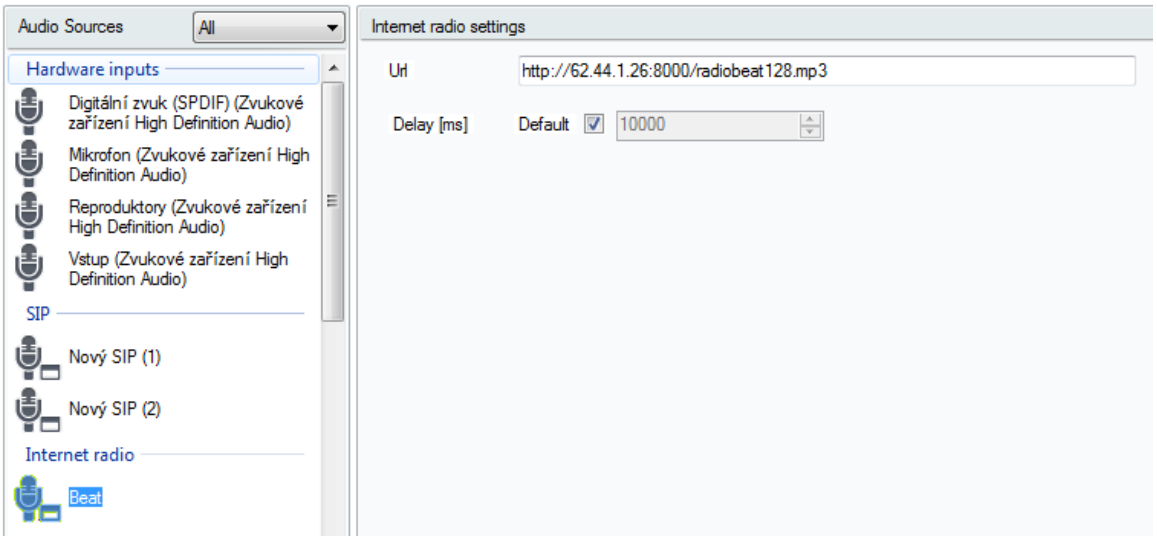


**Figure:** Internet Radio Parameters

## User Input

User input is assigned to the user and defines the audio stream parameters from the user for playing from Console, for example. Figure shows the default input settings.

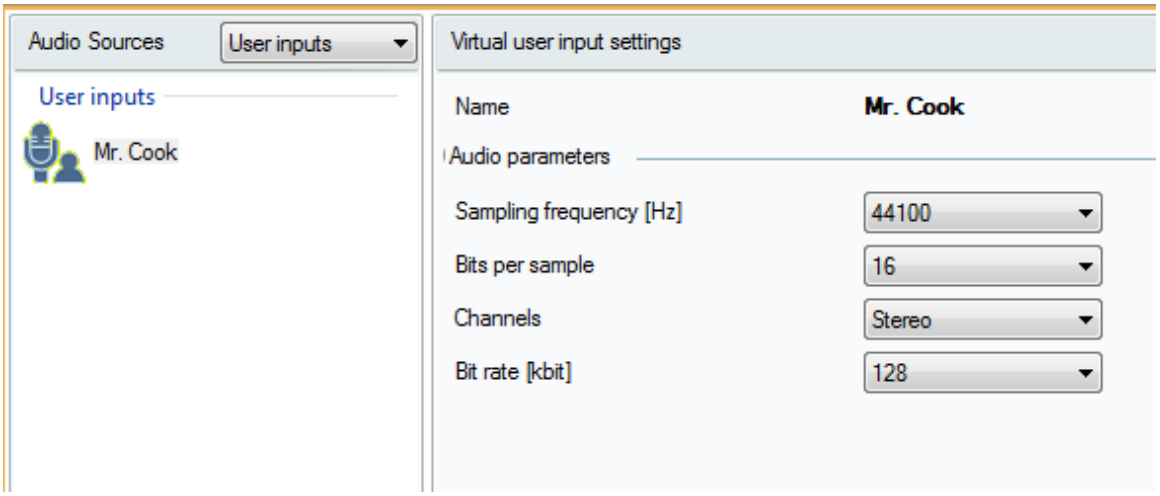


**Figure:** User Input Parameters

# Scheduler

**What you should know**

- If the "Create actions for session activation and deactivation automatically" option is enabled, session activation/deactivation is set together with the first action for the session.
- If you power up the server while the event "is in progress", the actions will not be performed. The server must always be activated **before the beginning** of the event.
- Action: session activation automatically enables all playlists in the session.

## Scheduler

Scheduler is used for creating actions based on playlists. You can schedule various actions for the playlists and assign them to time. A set of actions for playlists is called **Event** and you can control multiple playlists in multiple sessions within one event. Fig.1 shows an example of event with two sessions. One contains a playlist, the other is without a playlist.

### Event Creation

As mentioned above, the event is a set of actions to be executed over playlists. Therefore, prepare a session including the required playlists before creating an event. Only then you can start creating an event as follows:

**Procedure:**

**Create a new event** – use one of the following methods: click on the Scheduler tag and then on the **Create event** menu item, or use the floating menu. Also, you can assign an event to a date before creation by clicking on the required day and then on **Create event**.

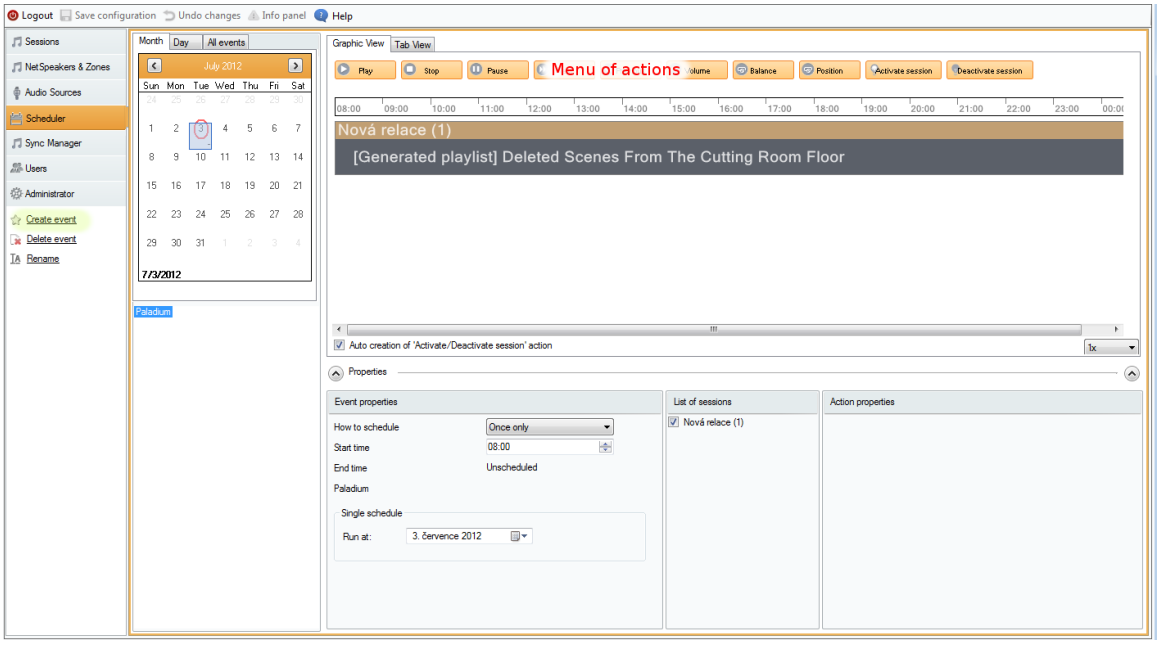


**Figure:** Scheduler Tab

**Set event start** – click on **Event** to display the event setting option to the left. Set the type, starting time and repeating intervals. The setting options depend on the action type:**Action setting options:**

- **Not scheduled** – this event will never be performed.
- **Daily** – the event will start at the set time every day (or as set in the **Every xth day**).
- **Weekly** – the event will start at the set time of the set days every week or **Every xth week**.
- **Monthly** – select a day in the month for the action start and also in which months the action shall occur **Once only**.

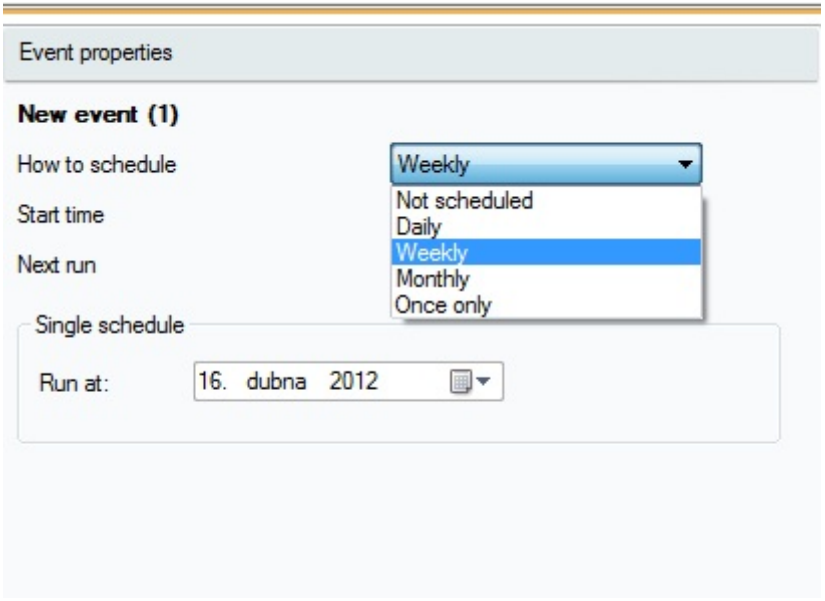


**Figure:** Event Settings

## Action Setting

Having created an event according to Subs. 6.1. above, specify the contents of the event, i.e. what shall be played and when.

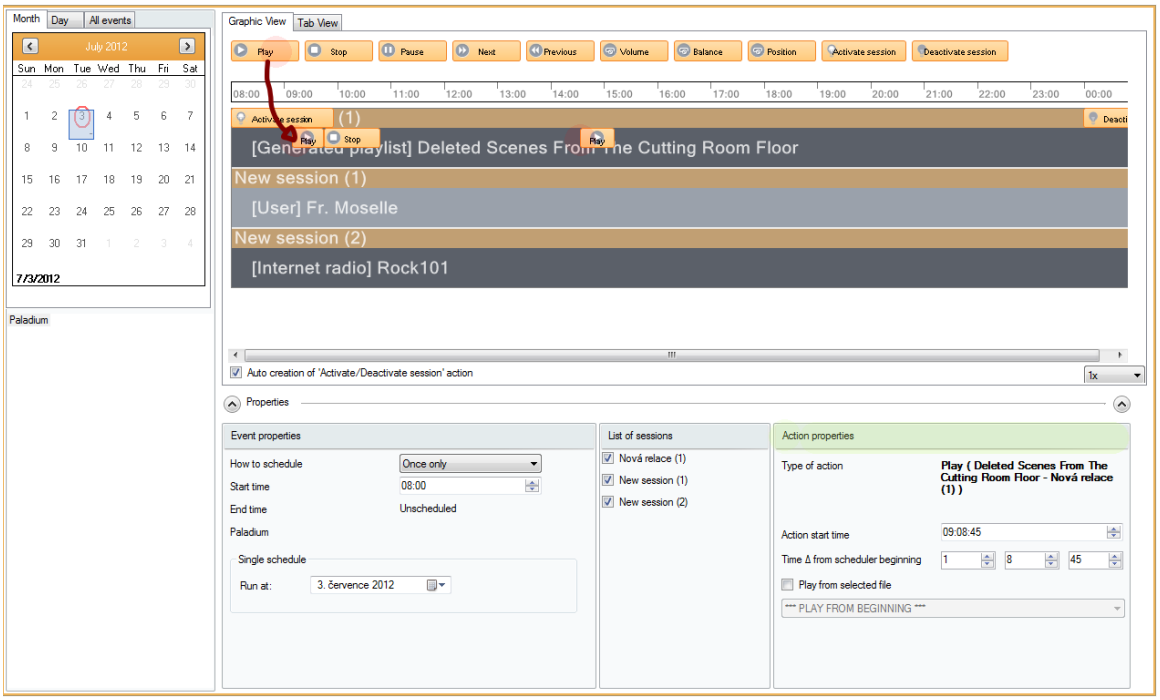


**Figure:** Action Setting and Display

Figure "Action Setting and Display" shows an example of a scheduled action. The **Activate/Deactivate session** actions are added automatically to the beginning and end of each event. If you disable this property, however, the scheduled actions will not start running in an inactive session. Also, **all playlists are switched on automatically** in a session that moves into the **active** state. Therefore, assign the **STOP action** to the beginning of the playlists that are not to be played.

Drag&drop the required action above the time axis of the event from the **offer of actions** in the time axis header (see the figure). **Always** move the action to the playlist to be controlled within one session. A session can contain multiple playlists and all the playlists can be administered.

You can modify the actions created as mentioned above according to the requirements of the given event. Click on an action and edit its parameters in the "Action setting" window. Refer to Figure "Action Setting and Display" for details on the **Play** action.

You can set different parameters than shown in Fig. 3 for different types of actions. You can set the start time only for most action types and other properties for some of them:

- **Play, Stop, Others, Previous and Activate/Deactivate session** – set the start time only.
- **Volume** – set the playlist volume – the volume level plus a smooth volume change.
- **Balance** – set the playlist balance – in addition to start time, set a smooth balance change via the **Change duration time** option.

In **List of session is possible** to choose sessions which will be used for event.

### Event Display

There is an event list in the left part of the Scheduler tag. Display the list in any of the following views: **Month**, **Day** or **All events** by selecting a card.

- **Month view** – this view displays calendar for navigation. Click on a date to run the events associated with the selected date.
- **Day view** – having selected a date in the Month view, click on the Day card to display the required day details. Like with the Month card, you can only see the actions assigned to the selected date.
- **All events** – select this card to display all the events available.

# Sync Manager

**What you should know**

- The SD card must be FAT32 formatted before being inserted in **2N® NetSpeaker**.
- **2N® NetSpeaker** has no RTC of its own. Connectivity to the server after HW restart is required for successful time synchronisation. Connection failures are irrelevant.
- We recommend to synchronise up to 100 MB of the contents.
- One action launched in time and one action launched by button press are always valid on one **2N® NetSpeaker**.
- Synchronisation rate depends on type of SD (SDHC) card.
- Content is synchronised automatically at the defined time or manually in the NetSpeakers & Zones tag.
- Content is synchronised only if nothing is being played from the server.

## Sync Manager

Sync Manager is used for administration of SD cards inserted in the **2N® NetSpeaker** system, synchronisation of these cards with the defined content and setting of action starts.

### Sync Manager Tag Layout

Actions for synchronisation with the SD card (inserted in **2N® NetSpeaker**) are managed via the Sync Manager tag. The layout of this tag is rather complex. Refer to Fig. 1 for an overview of its functions.

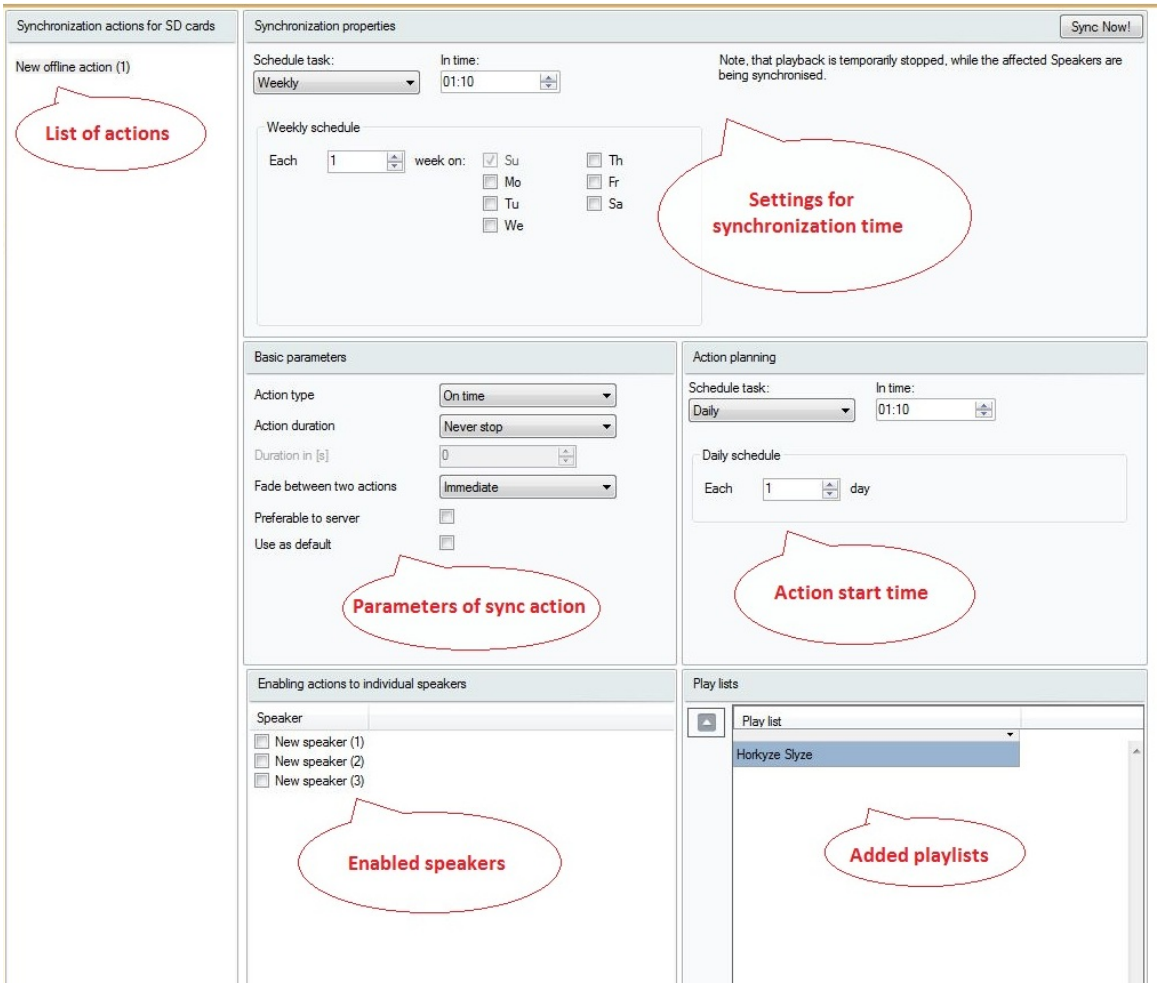


**Figure:** Sync Manager Tag Layout

The **left section** is dedicated to the list of **Actions for synchronisation**, the right–hand window part includes settings of action properties. These settings are divided logically as follows:

- **Synchronisation properties**
- **Basic parameters**
- **Action planning**
- **Enabling action to individual speakers**
- **Playlists**

The subsections below provide details on these logical parts.

## Synchronisation properties

In this section, you can set and schedule action synchronisation. The following options are available:

- Not scheduled – perform synchronisation manually by pushing the Sync Now! button, or
- At defined time with the "Daily", "Weekly", "Monthly" and "Once only" options. Each of these options can be further set. This setting specifies the time when the

selected synchronisation shall be launched. Fig. 2 shows an example of configuration for a one–month progress of updates.

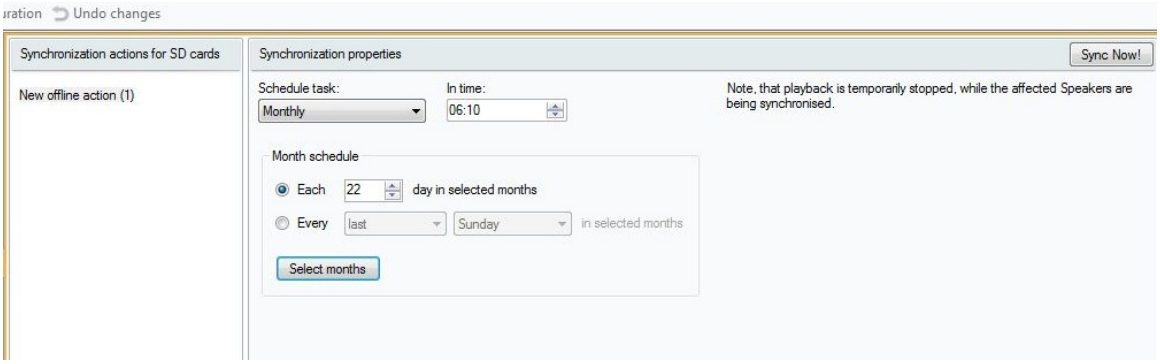


**Figure:** Synchronisation Properties

## Basic parameters

These parameters define how the action shall behave: its trigger and behaviour upon start.

**Action type** – define the action trigger: either the logical input to **2N® NetSpeaker** ( **Button press**) or a time value (**At time**). If you select time, select the time value and start day in **Action planning**; refer to Subs. 6.1.3., Action Planning.

**Action duration** – set the action end.

- **Specific time** – set the action duration using the following **Duration in (s)** field.
- **Repeat n–times** – define how many times the playlists selected in the Playlist shall be played. Use the **Repeat count** item.
- **Repeat all around** – make playing never stop. This option is particularly comfortable in connection with the HW button: press the button once to start the action and repress it to stop the action.

**Fade between two actions**

- **Prefer to server** – enable this parameter to interrupt the current playing from the server whenever the action starts.
- **Use as default** – define which action is the default one and must be checked off.

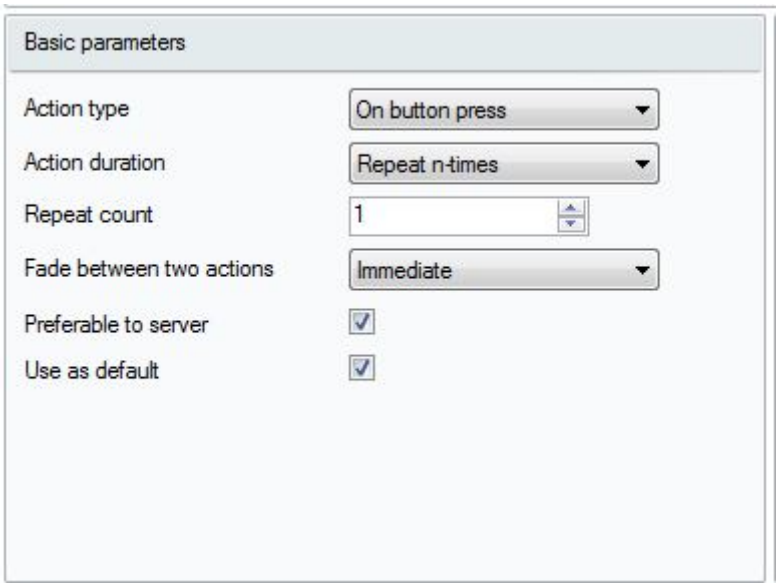


**Figure:** Basic Parameters

## Action planning

If you select an action scheduled for start **at time**, it is necessary to schedule the action correctly. To do this, use the **Action planning** section. Fig. 3 shows a weekly schedule, but you can choose any of the following types of planning:

- **Not scheduled** – this action will never start.
- **Daily** – the action will start at the set time every day (or as set in the **Every xth day**).
- **Weekly** – the event will start at the set time of the set days every week or **Every xth week**.
- **Monthly** – select a day in the month for the action start and also in which months the action shall occur **Once only**.

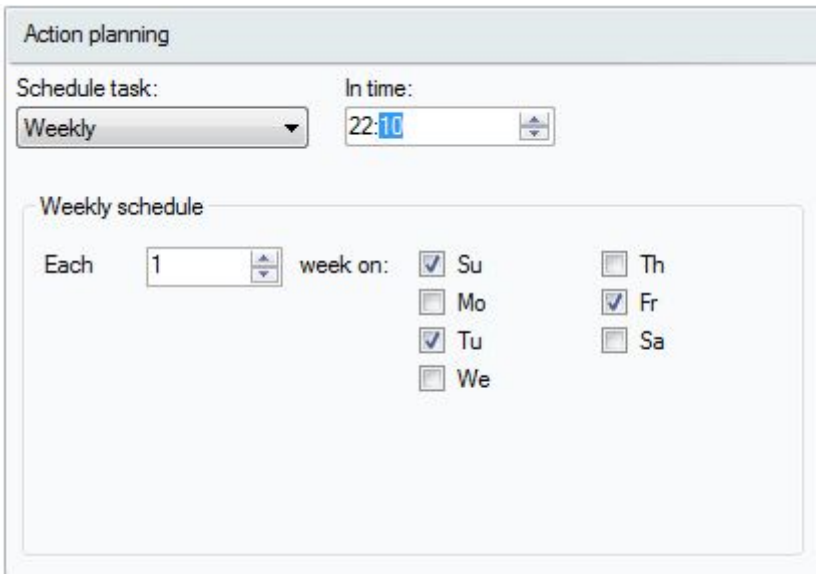


**Figure:** Weekly Schedule

### Enabling action to individual speakers

Define the speakers for which the action shall be enabled. These speakers will be synchronised with the server and the files will be saved onto the SD card for each **2N® NetSpeaker.**

### Playlist

Select the playlist(s) in the Playlist to be played when the given offline action starts. Use the arrows to assign priorities to the playlist(s).

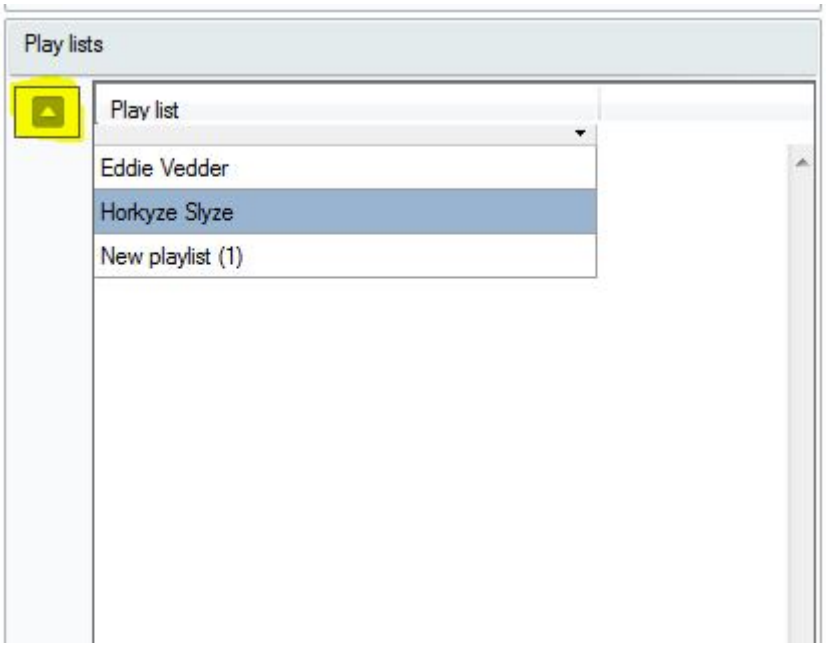


**Figure:** Playlist

### Example of Synchronisation Action Configuration

Suppose company Xyz intends to play ad spots in its 2N® NetSpeaker system at 6 a.m. every day. As the spots vary every week, it will be necessary to synchronise the **2N® NetSpeaker** system early in the morning on Mondays.

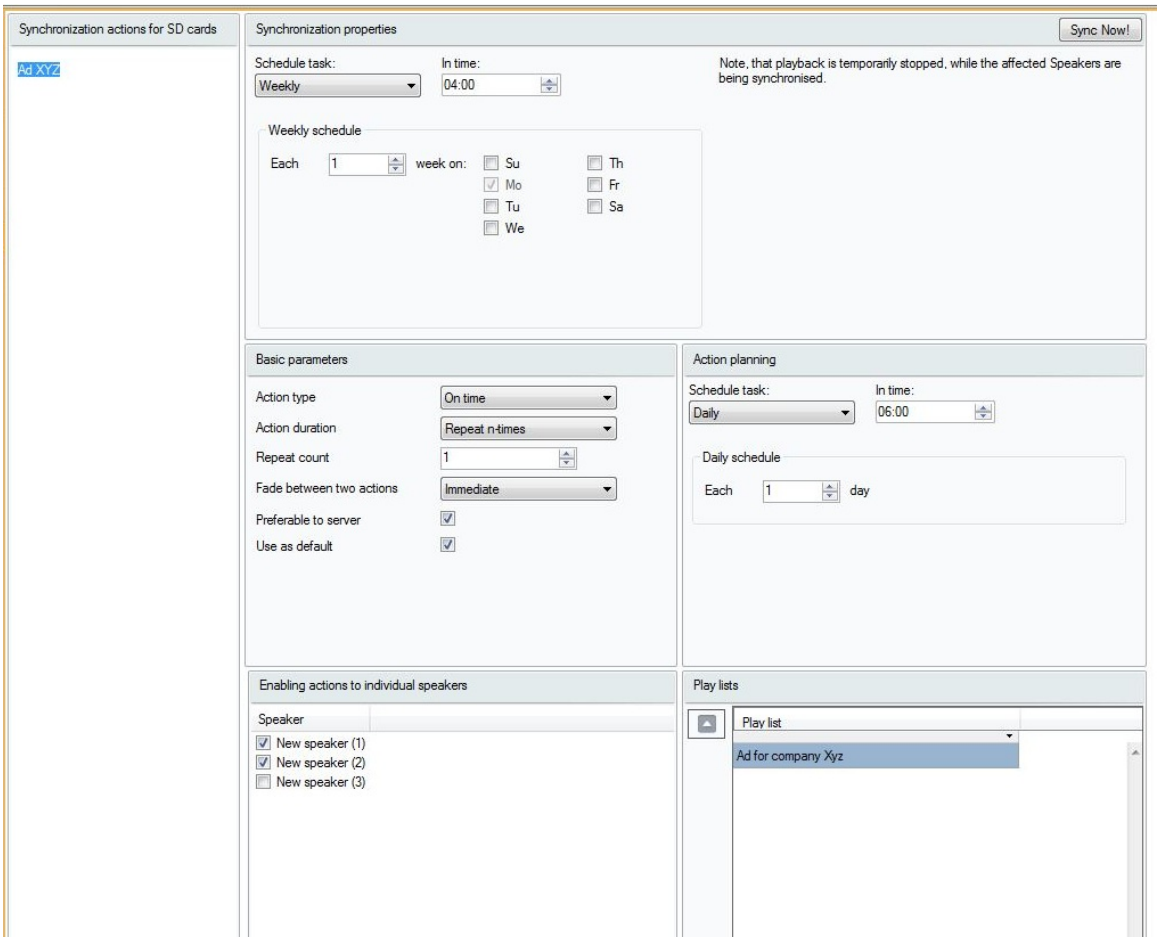


**Figure:** Example of Xyz Ad Setting

Create a new action called "Xyz advertisement" via the Sync Manager tag.

1. Set the weekly synchronisation option in the **Synchronisation properties**, refer to Fig. 6., selecting Monday.
2. Now set the **basic parameters**. Select the **At time** action type and **Repeat n–times** with n=1. Tick off the other options and **Schedule action start**. Suppose you want to play the commercial spot at 6 a.m. every day. Therefore, select **Daily planning with start at 6:00**.
3. Select the **2N® NetSpeaker** units in the **Enabling action to individual speakers** to be involved in the action.
4. **Caution! Make sure that the selected 2N® NetSpeaker units contain the SD cards via the Speakers tag**.
5. Now select the playlist to be saved on the SD card and played at the defined time. Retrieve a floating menu in the **Playlist** section with the right–hand mouse button and select **Add**. Choose Playlist –> "Xyz advertisement" from the pop–up menu.
6. **Save the setup!**

# Users

**What you should know**

- This menu helps you create users and specify user rights.
- A created user can log in to the ControlPanel, Player, Console and/or API.

## Users

The Users tag is used for user administration. It helps you create and delete users and change user rights (user roles).

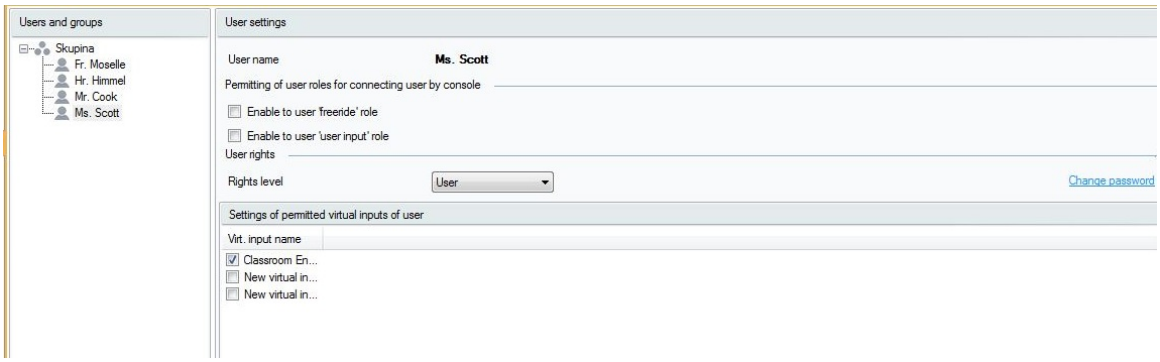


**Figure:** Users Tag Layout

Figure shows the Users tag with the **User settings** to the right. You can define the user rights for Console or Player user connection.

- **"Freeride" role** - this user itself defines what and where to be played. This user has the right to play without restrictions and without using pre-defined sessions. The user has access to all destinations and its broadcasting has the highest priority.
- **"User input" role** - this user will be assigned the "home" session for broadcasting by the system administrator.

**Rights level** - select the User or Administrator level. The Administrator cannot log in to the Console and Player, but may use the ControlPanel software.

### Virtual Inputs

The system administrator defines the virtual inputs to certain sessions; refer to the Sources tag for details. These inputs can then be assigned/provided to users in the **Permit user connection to virtual inputs** section. This section includes a list of all virtual inputs and helps you assign a user to an input by ticking off the option.

# Administrator

**What you should know**

- Access via API is restricted to 10 clients by default.
- Multicast is active on addresses 239.0.0.0/8 in **2N® NetSpeaker** by default.
- Trace can be saved and help communicate your problem to the 2N Technical Support department.

## Administrator

The **Administrator** tag helps you set other **2N® NetSpeaker** parameters and monitor the state of the system. The tag contains general settings and administration.

### General Settings

General settings are provided in this section.

**General** – set the ControlPanel language.

**Audio devices** – select the output for listening–in. Listening–In allows you to listen to sessions locally and select a device to which the sound will be routed. These devices depend on the PC configuration.

**Sessions** – set more session parameters.

- **Show sessions from connected consoles** – allows you to see even sessions that are created by the Console and Player users with Freeride privilege.
- **Show big icons in destination list** – changes the size of the session pictogram.

**Generated playlists** – helps you create playlists automatically over one or more directories based on preset rules. Click on **Add directory** to select the audio file directory.

Press the tick button to define:

- whether the playlists shall be generated from the subdirectories; or
- whether the playlists shall be generated according to genres, authors, directories or albums.

**Save** the generated playlists and use the genre/author/directory/album tick button to display the selected playlist type.

### Network Settings

**Multicast addresses** – set the multicast addresses. Select multicast for address scope, multicast for port scope or single IP address transmission. The default address scope is 239.0.0.0/8. Fig. 1 shows the default setting for address scope.

**API** – set the port for **2N® NetSpeaker** API connection and client restriction.

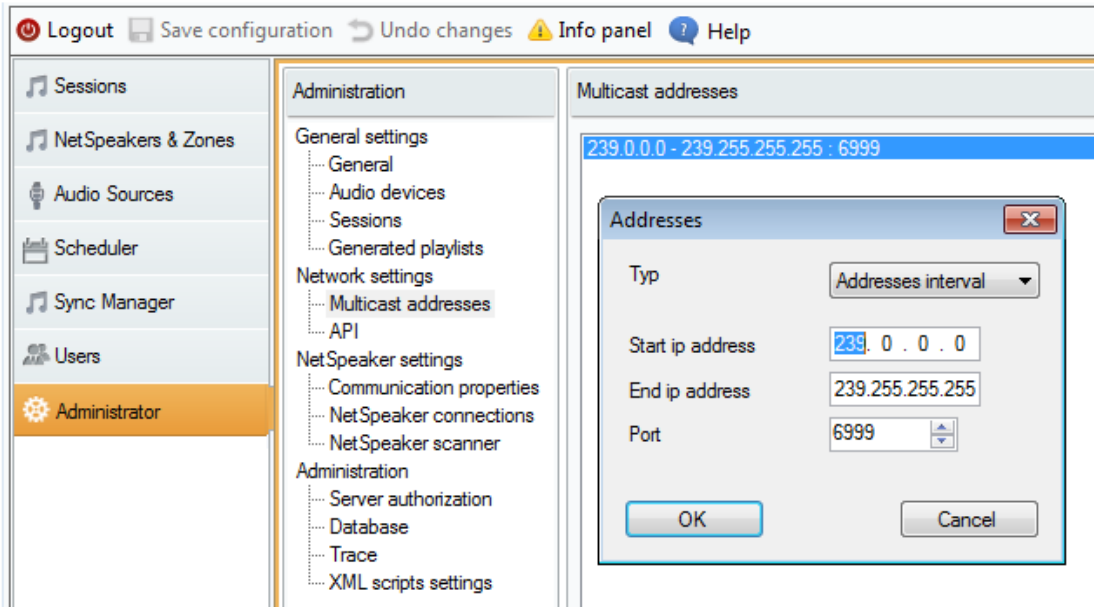


**Figure:** Multicast Setting Options

## 2N® NetSpeaker Settings

**Communication properties** – set the server domain for the connected **2N® NetSpeaker** units not to connect to another **2N® NetSpeaker** Server in the network. **NetSpeaker connections** – set the connection parameters for **2N® NetSpeakers** in the passive mode (refer to the **2N® NetSpeaker** scanner below). **Save** the parameters to establish connection to 2N® NetSpeaker.

**Parameters:**

- **Connection timeout** – define the time interval between the connection making attempts.
- **IP address** – set the **2N® NetSpeaker** IP address.
- **IP port** – set the **2N® NetSpeaker** port; 6998 is the default value.
- **Automatic firmware upgrade** – disable the **2N® NetSpeaker** firmware upgrade.

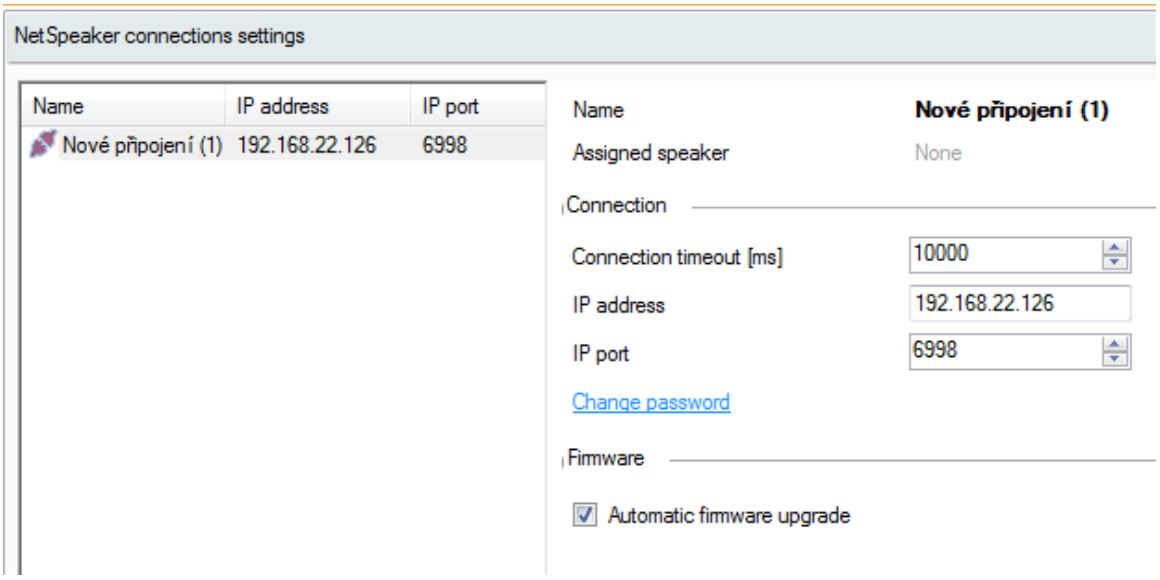


**Figure:** Connection Parameters

**NetSpeaker scanner** – use the scanner to search the **2N® NetSpeaker** units and their settings in the network. All the speakers available in the network are displayed to the left. Having selected a speaker, you can change its parameters in the right–hand part to make it connect to the **2N® NetSpeaker Server** automatically (active mode), or using the **NetSpeaker connections** parameters.

**Parameters:**

- **IP address** – **2N® NetSpeaker** IP address.
- **IP mask** – network mask.
- **IP gateway** – network gateway.
- **Server IP address** – **2N® NetSpeaker Server** IP address.
- **Domain** – **2N® NetSpeaker** with the set domain is assigned to the server with the same domain. **2N® NetSpeaker** automatically takes over the domain of one of the servers in the network.
- **Description** – enter optional details on the selected **2N® NetSpeaker** unit.
- **Mód**– select the passive/active/search mode.
  - **passive mode** means that it is necessary to set connection to **2N® NetSpeaker** from the server side in the **NetSpeaker settings** –> **NetSpeaker connections** section.
  - **active mode** means that **2N® NetSpeaker** gets connected to the **2N® NetSpeaker** Server automatically using the **Server IP address** parameter.
  - **search mode** means that **2N® NetSpeaker** finds the **2N® NetSpeaker Server** in the network automatically, takes over the domain and gets connected to the Server.
- **DHCP client on** – select on/off to determine whether **2N® NetSpeaker** shall use the network setting obtained from the network via the DHCP, or use the statically set parameters.

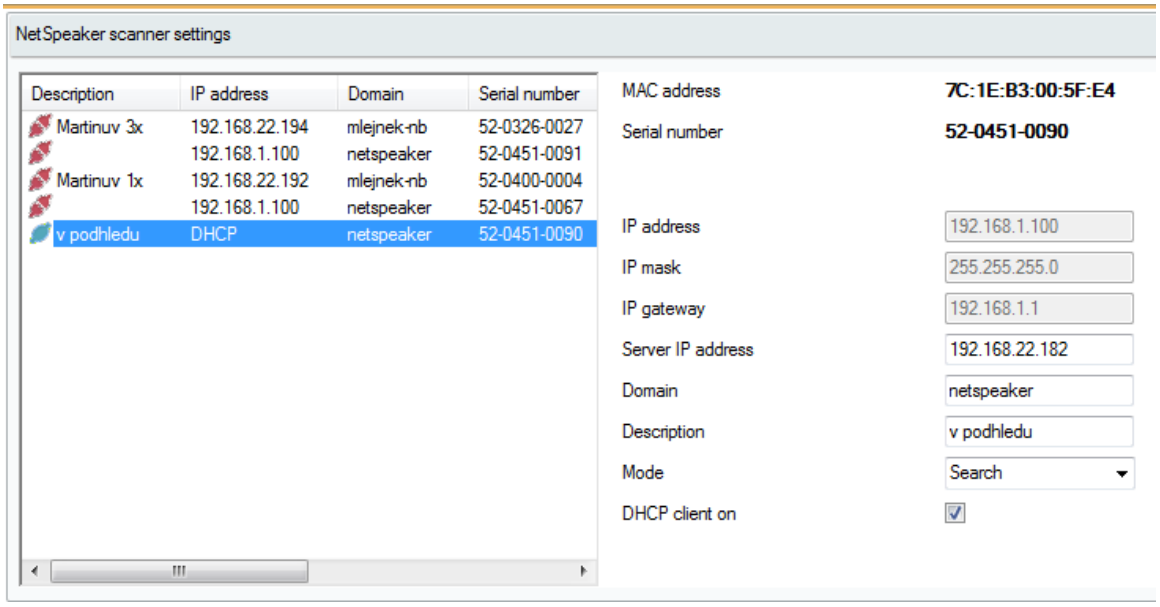


**Figure:** Scanner

## Administration

### Server authorisation

- **Server authentication to 2N® NetSpeaker** – set the password for server authentication to **2N® NetSpeaker**.
- **2N® NetSpeaker authentication to server** – set the password for **2N® NetSpeaker** authentication to server.
- **Administrator login authentication password** – change the main administrator password of the **Administrator** user.

**Database** – display database tables.

**Trace** – full listing of information exchange between the **2N® NetSpeaker** system components. Use the floating menu to retrieve more functions such as:

- **Settings** – set automatic trace saving onto a disk of the PC where the ControlPanel is running.
- **Filter** – create a filter for existing IDs or characters (**string**).
- **Save to file** – save the current system trace using the floating menu –>Save to file.
- **Import/Export settings** – save settings of colour rules for filters.

**XML script setting** – display the XML scripts while configuring **2N® NetSpeaker** as full or simplified listings – listing of debug functions.

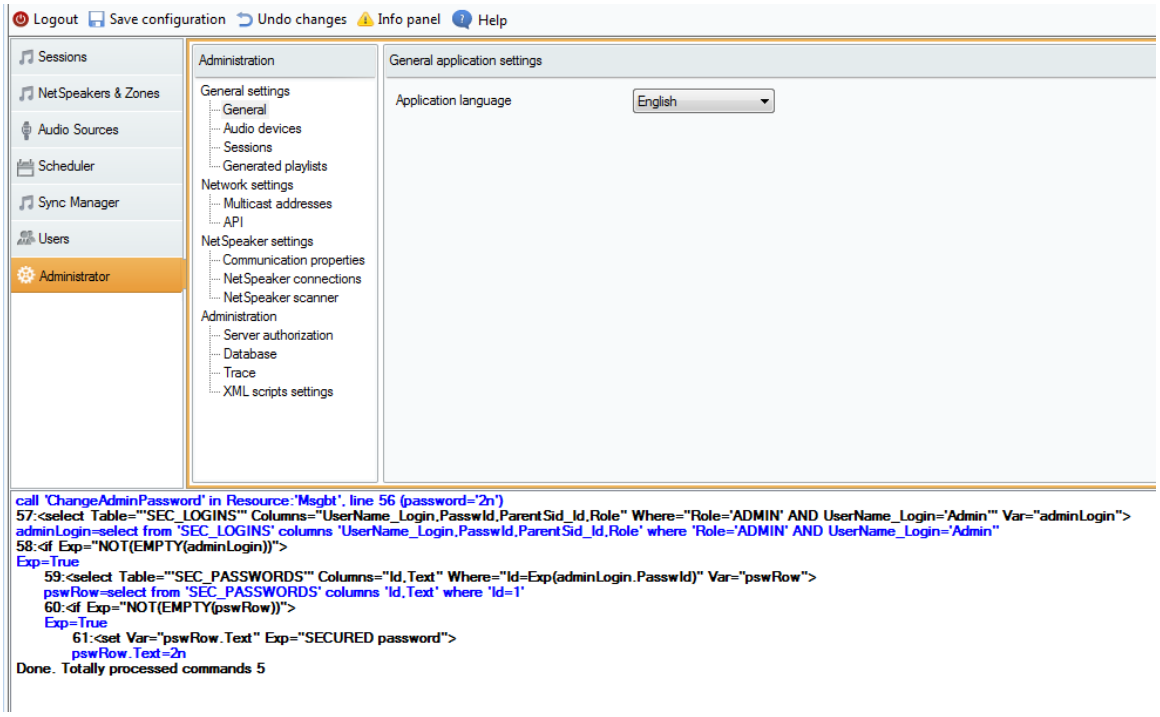


**Figure:** XML Script for Password Saving

# Manual for Console software

2N® IP Audio Console is user friendly software used for broadcasting of announcements over 2N® IP Audio System. 2N® IP Audio System has to be set by administrator before using this application.

In this section:


- Settings and Connection

# Settings and Connection

**What you should know**

- The Console application allows for sending audio from a microphone or playing files.
- **2N® NetSpeaker** recognises 3 levels of rights, which are managed by the system administrator.
- **CAUTION:** Freeride is the highest priority user role and shall be preferred in all zones.

## Console Application

The Console program is used for broadcasting to pre–defined sessions or inputs for **2N® NetSpeaker** users. It is primarily designed for broadcasting audio **via microphone** or audio/music in the mp3 format (wma, ogg).

### Connection and Settings

The login screen is displayed upon Console start. Create the user name and password using the ControlPanel program or ask your system administrator to create and assign the rights.

Enter the user name and password into the dedicated fields in the Console window upon start. Moreover, you have to configure the correct host name or IP address for login. Click on the setting pictogram in the program header, see Fig. 1, and then on **Server settings** to get into configuration.

Use the **Language settings** to modify the application language.

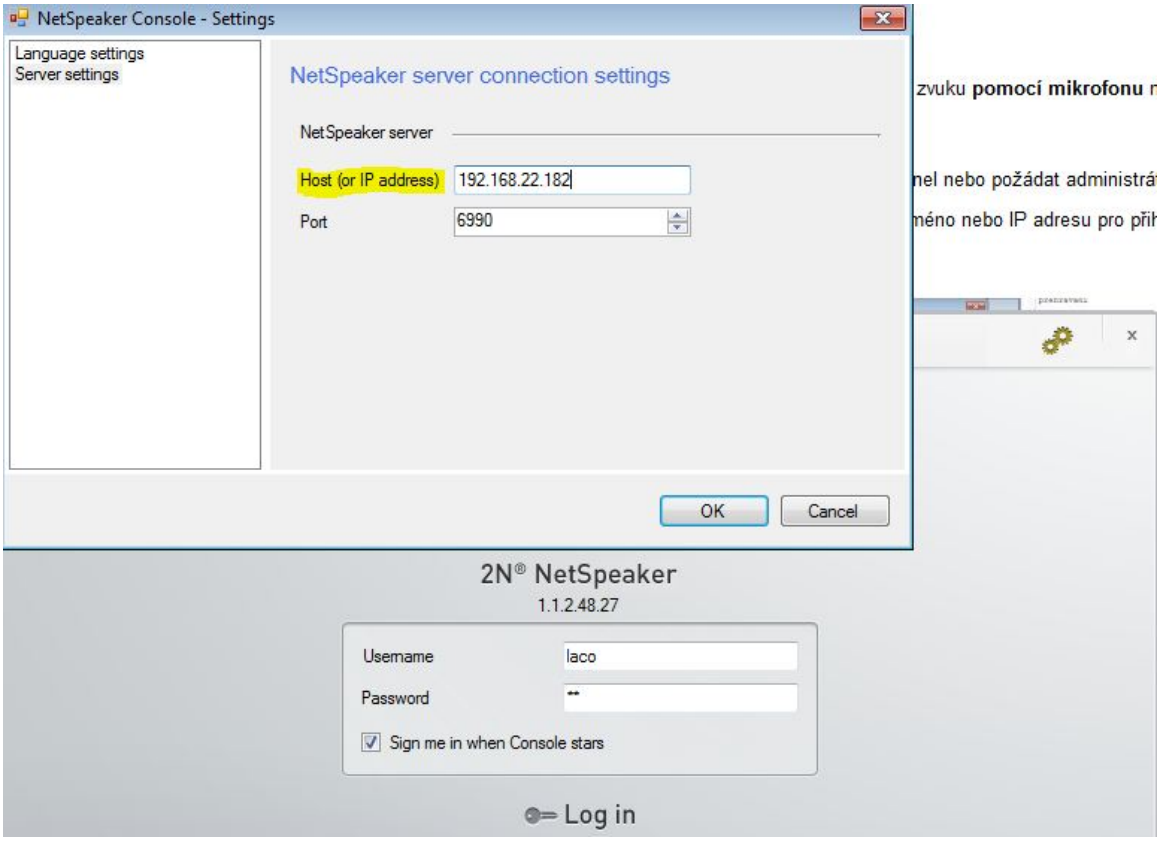


**Figure:** Login via Console

Having set all the necessary parameters and entering your user name and password, log in. If successful, you get to the Console screen to select your role.

## User Roles

This screen helps you select a role after login to the Console program. Figure shows the window for a user with all roles. Refer to other parts of the manual for details on the roles.

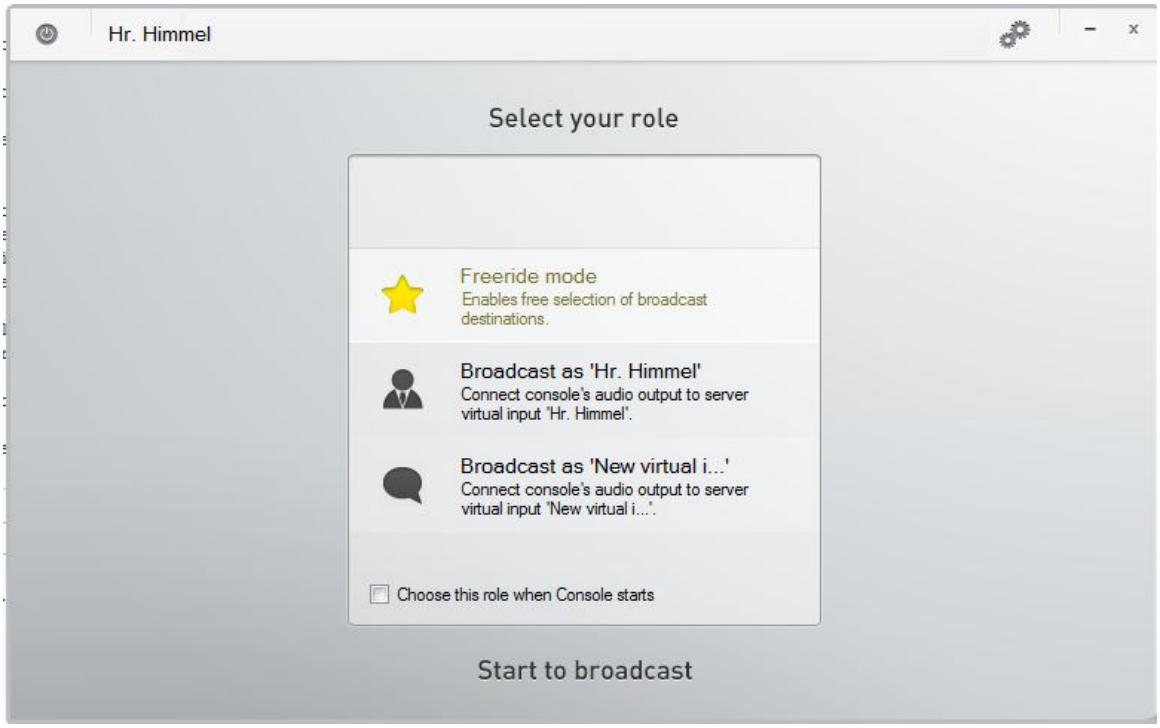
Hr. Himmel
Select your role
Freeride mode
Enables free selection of broadcast destinations.
Broadcast as 'Hr. Himmel'
Connect console's audio output to server virtual input 'Hr. Himmel'.
Broadcast as 'New virtual i...'
Connect console's audio output to server virtual input 'New virtual i...'.
Choose this role when Console starts
Start to broadcast

**Figure:** Console Roles

When you have selected a role, the screen will display the selected role, but the appearance is similar in all cases. New pictograms and the role name get displayed in the application header. To change the role, use the **human** pictogram, which returns you to the **role selecting window**. The **"power off"** pictogram is used for **logout** fro m the Console application.

## General Console Control

Primarily, Console is designed for broadcasting sounds **via microphone** or audio/music in the mp3 format. The left section with the microphone picture controls the microphone and the middle section – List of sounds – helps play audio files. Press the "Add" button to add a sound to the application. The right–hand section is used for input check and control. Refer to Figure for the Console program control.

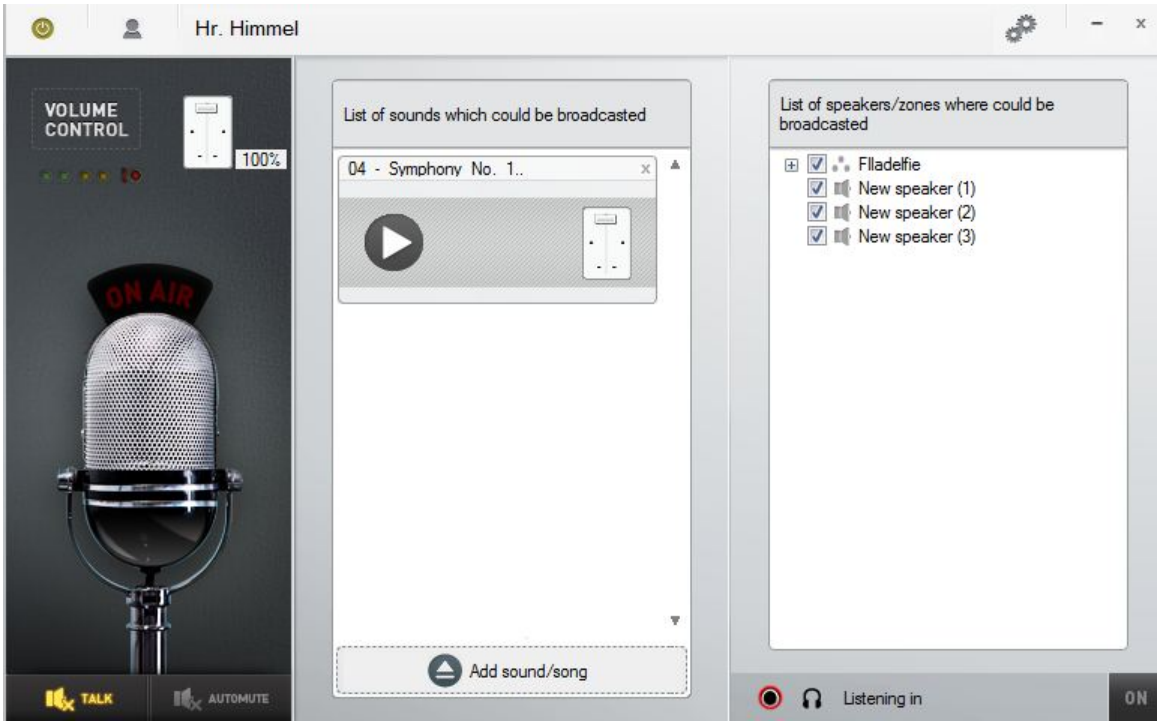


**Figure:** View of Console Control

**Output** – there are different outputs for different roles and so refer to Subss. **1.3.1 – 1.3.3.** for details.

**List of sounds** – or list of audio/music sources in files. Click on **Add** and select the required file. Play this file using the **Play** button.

**Microphone** – the left window section controls the hardware microphone of the PC where Console is running.

- **TALK button** – used for microphone activation. Upon activation, the ON AIR sign goes on and the button changes into **MUTE**. You can broadcast even during audio playing from a file.
- **AUTOMUTE button** – used for enabling the "Automatic microphone activation" function. When you press the button, the **Automute** sign goes on. Let us **give an example**: The "College radio" broadcasts a few songs every evening and the presenter announces every song. In this case, the presenter selects a song from the file at the beginning of broadcasting. He or she selects **Automute** and can talk when the song is over – **Automatic microphone activation**. When the Play button is pushed for another song, the microphone is **automatically deactivated** and the listeners do not hear the studio noise.

You can enable **Listening in** in the Console application too. To do so, push the **ON** but ton to the right of the lower screen. Listening in **is used** for activation of local listening to played files or microphone sound. Select the device to listen in via the **Setting–>Audio settings** menu.

### Freeride mode broadcasting

The Freeride user is assigned the highest user rights and can thus broadcast and play with the highest priority. This user selects the destination itself by ticking off the 2N® NetSpeaker units in the **List of speakers/zones**. Refer to Figure.

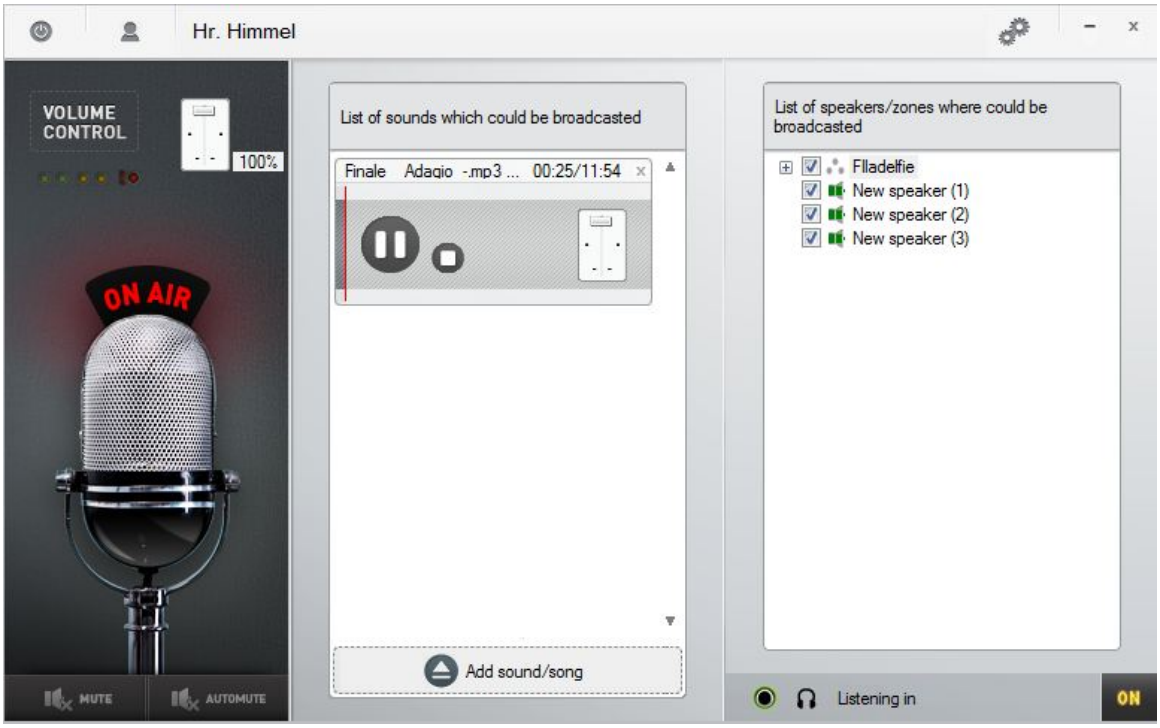


**Figure:** Freeride Role

### Broadcast as "user"

Logged in as a user, you cannot choose where to broadcast. Your user role authorises you to broadcast to sessions to which you are assigned as a user input. Contact your system administrator for more information.

### Broadcast as "virtual input"

Logged in as a virtual input, you cannot choose where to broadcast. Your user role authorises you to broadcast to sessions which contain the virtual input assigned to you. Contact your system administrator for more information.tails on the roles.

# Manual for Player software

The 2N® IP Audio Player program helps you play files and playlists in a simple and comfortable manner. It can be used by Freeride users only.

In this section:


- Software Control

# Software Control

**What you should know**

- **CAUTION:** Freeride is the highest priority user broadcasting role and shall be preferred in all zones.

## Player Application

The Player program helps you play files and playlists in a simple and comfortable manner. It can be used by Freeride users only. No other user is authorised to use the Player application.

### Connection

Upon launch, the login window gets displayed. Change the **server** address to the address defined by the system administrator. The same applies to the login a password. Use Menu –> Tools to change the application language.

### Playing

The purpose of the application is to provide easy and comfortable control. Hence, the playing settings are very simple and intuitive. Push the buttons in the lower part to add files to be played to the application. The following options are available:

- **Add mp3 files** – add files to the playlist.
- **Delete selected items from playlist** – remove songs from the playlist.
- **Add mp3 from directory** – add a directory to the playlist.
- **Save playlist into files** – save the playlist into an **.m3u** file on a local disk.
- **Add playlist** – add an empty playlist to the Player application.
- **Rename current playlist** – rename the currently selected playlist.
- **Delete current playlist** – delete the currently selected playlist.
- **Select playlist** – select one of the playlist created and modify the current playlist.

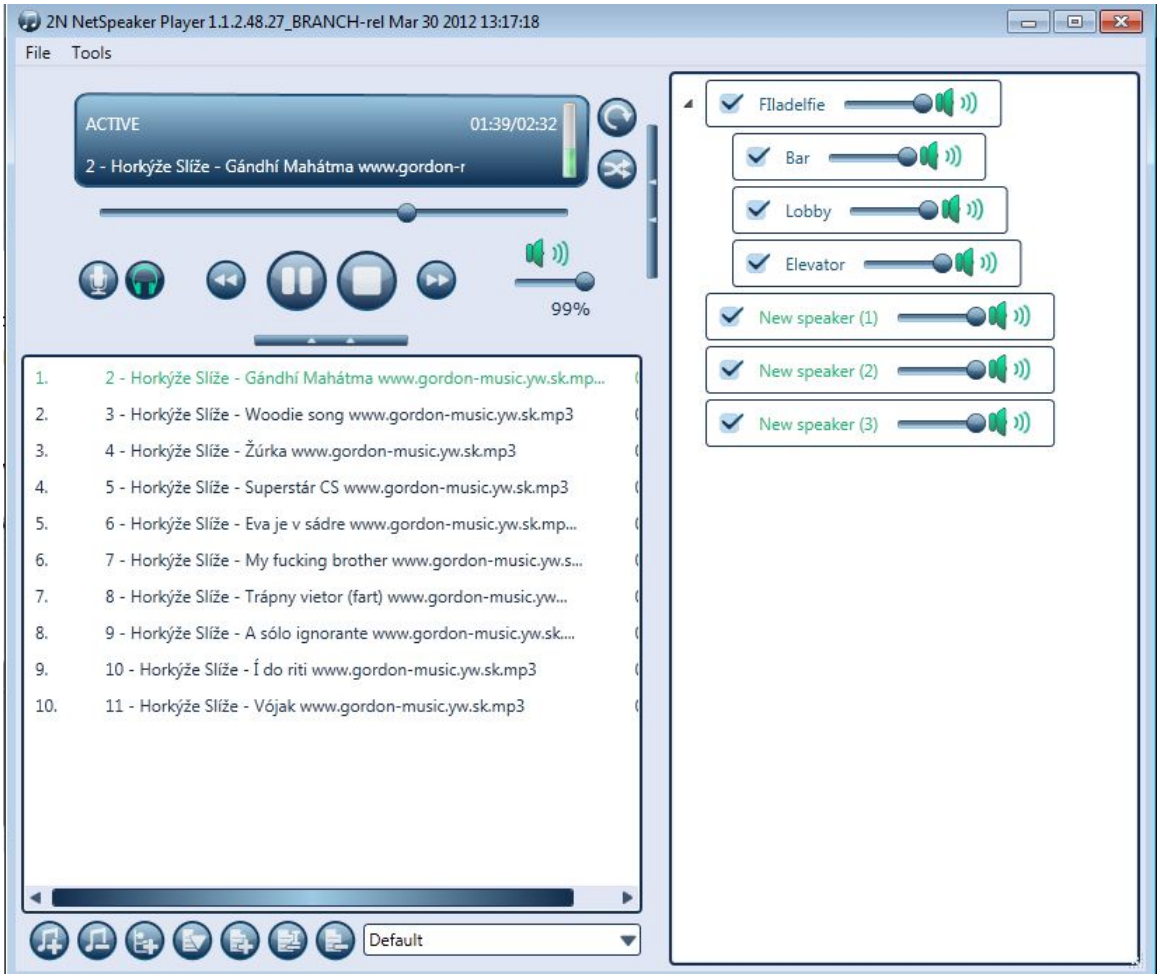
2N NetSpeaker Player 1.1.2.48.27_BRANCH-rel Mar 30 2012 13:17:18
File
Tools
ACTIVE
01:39/02:32
2 - Horkýže Slíže - Gándhí Mahátma www.gordon-r
99%
1. 2 - Horkýže Slíže - Gándhí Mahátma www.gordon-music.yw.sk.mp...
2. 3 - Horkýže Slíže - Woodie song www.gordon-music.yw.sk.mp3
3. 4 - Horkýže Slíže - Žúrka www.gordon-music.yw.sk.mp3
4. 5 - Horkýže Slíže - Superstár CS www.gordon-music.yw.sk.mp3
5. 6 - Horkýže Slíže - Eva je v sádre www.gordon-music.yw.sk.mp...
6. 7 - Horkýže Slíže - My fucking brother www.gordon-music.yw.s...
7. 8 - Horkýže Slíže - Trápny vietor (fart) www.gordon-music.yw...
8. 9 - Horkýže Slíže - A sólo ignorante www.gordon-music.yw.sk....
9. 10 - Horkýže Slíže - Í do riti www.gordon-music.yw.sk.mp3
10. 11 - Horkýže Slíže - Vójak www.gordon-music.yw.sk.mp3
Default
FIladelfie
Bar
Lobby
Elevator
New speaker (1)
New speaker (2)
New speaker (3)

**Figure:** Login via Console

Having prepared a playlist, simply select the speakers/zones for playing in the right–hand section of the screen. You can also control volume of each **2N® NetSpeaker**.

**Start playing** by pushing the Play button. Playing will discontinue the current playing processes in all zones selected by you. If you want to announce a message through the microphone, you can **broadcast to all selected zones via microphone too**. Click on **Activate microphone** to switch on the microphone.

## Local Playing Settings

In addition to **2N® NetSpeaker** playing, the Player application allows you to play files locally too. Find the settings for local sources in **Menu–>Tools–> Local source settings**. Select the source for microphone and volume in the window (Figure "Local sources"). The same settings are used for listening in – select the HW sources for the output from PC and set the volume level.

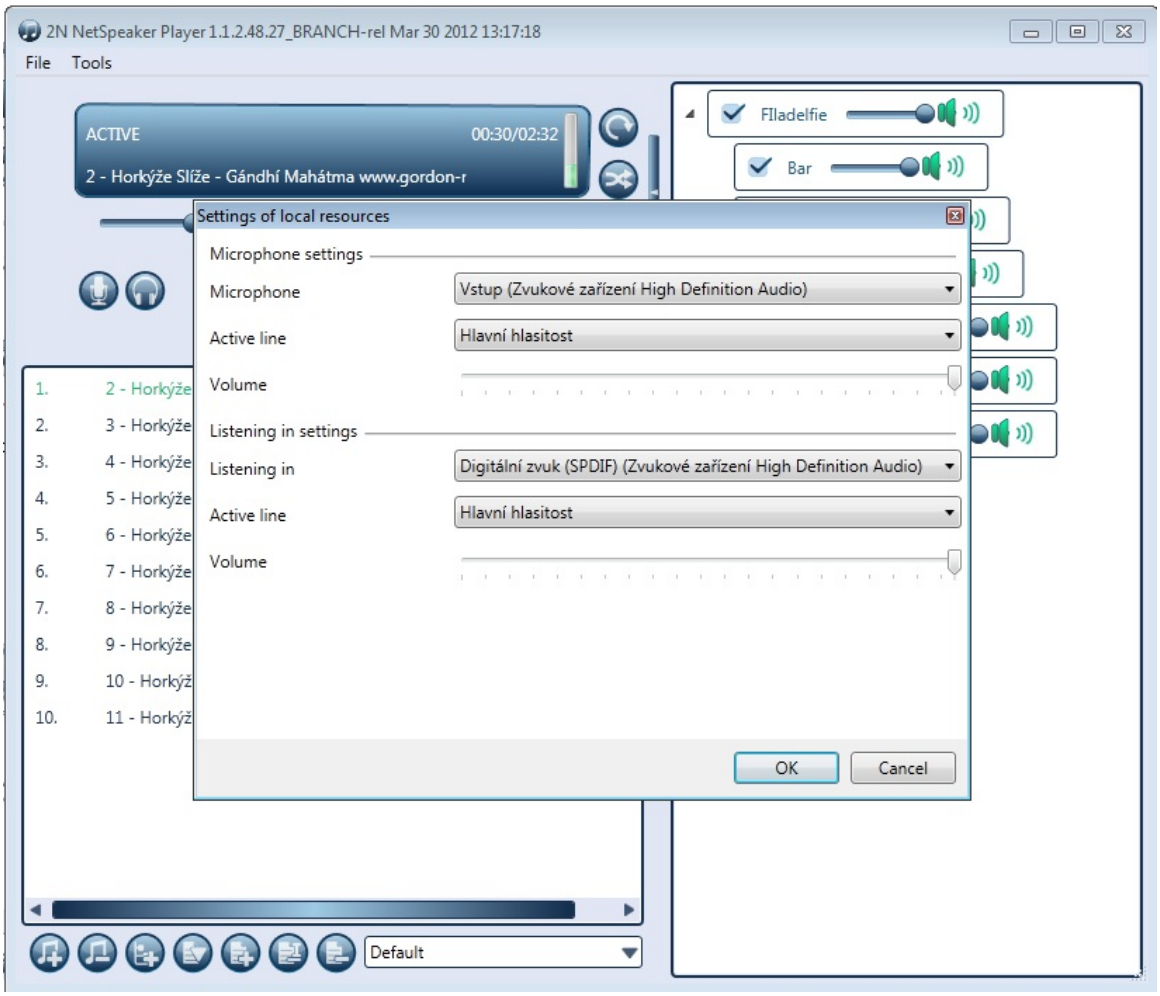


**Figure:** Local Sources

# NetSpeaker Server API manuals

2N® NetSpeaker Server API is used for NetSpeaker Server control by XML commands and request. You are free to build your own application for NetSpeaker Server control.

In this section:


- Basic Properties
- Session Configuration
- Audio Input Configuration
- Playlist Configuration

# Basic Properties

This sections provides you by basic **2N® NetSpeaker Server API** commands and response.

In this section:

# Basic Information

## XML Interface for Network Services

### Local Connections

By default, the **2N® NetSpeaker Server** listens on TCP port 6543 on all eth server ports. External applications are connected to this port. Communication between external applications and the **2N® NetSpeaker Server** alway s starts with the BIND command. This command is sent by the client server. Applications cannot continue communicating until they receive the <bind Status="OK"/> reply from the **2N® NetSpeaker Server**. The server thus confirms the connection and creation of a communication channel.

Clients can choose to implement a full XMPP client or to simply run a streaming XML parser, such as the libxml2 Simple API for XML (SAX) parser.

### XML Interface

After communication initialisation is completed, the **2N® NetSpeaker Server** sends <bind Status="OK"/>. There are two types of XML messages for communication:

The request and response messages define the request-message content using the "<msg Id=" ID information element command, the "<CTI_IE_REFERENCE Ref" tag and IE </msg> termination at the end of message. This type of XML message is used for communication commands and replies from the **2N® NetSpeaker Server**. This type of communication is also used for event registration and unregistration of events.

Event messages use the "<CTI_IE_REFERENCE Ref" tag. This type of IE is used for recognition of responses sent asynchronously on events in the **2N® NetSpeaker Server**.

### Message Request and Response

The **2N® NetSpeaker Server** XML interface has two different formats:

**Request**

```
<msg Id="command identify">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_REQUEST >
</msg>
```

**Response**

```
<msg Id="command identify">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result=""/>
</msg>
```

This document also contains XML schemes which prove details on the incoming and outgoing combinations using the XML request and response.

## Opening Communication

### 2N® NetSpeaker Server – Starting Communication

By default, the **2N® NetSpeaker Server** listens on TCP port 6543 on all eth server ports. External applications are connected to this port.

Communication between external applications and the **2N® NetSpeaker Server** alway s starts with the BIND command. This command is sent by the server client. The application cannot continue communicating until it receives the <bind Status="OK"/> reply from the **2N® NetSpeaker Server**. The server thus confirms the connection and creation of a communication channel.

**Request**
<bind ConnType="LOCAL" AppName="SpkCtiTest"/>

**Response**
<bind Status="OK"/>

**Error message**
<error Layer="XMLB">UNBOUND_STREAM</error>

The following answers have been added for different situations:

NNB_XML_STATUS_OK ...external application can start sending other commands.

NNB_XML_STATUS_ALREADY_BOUND ... application ignores this error and can send commands, bind is no longer needed.

NNB_XML_STATUS_NEIGHBOUR_IS_UNREADY ... application must repeat the bind command after a time delay of 100 ms at least.

No new commands can be sent until the CTI interface responds to the bind command.

If the application does not receive an answer in about 1 sec, it repeats the bind command.

## Authorisation

**The AppName item is used for application identification. The application cannot continue communicating until it receives the <bind Status="OK"/> reply from the 2N® NetSpeaker Server. The server thus confirms the connection and creation of a communication channel.**

**Explicit authorisation – LOGON method**

Or, you can enter your login and password simply as follows:

1. Check whether the library offers the LOGON method after receiving the request for authorisation and, if yes, then:
2. Send the instruction <auth Method="LOGON" LoginName="..." Password="..."/>; where ... is to be replaced with the user name and password (default name: Admin, password: 2n).
3. Wait for the reply: <auth Method="LOGON" Status="OK"/>.

If the reply contains the Status attribute with OK value, it means that the XML bridge has been successfully authorised with the data received. Any different value of the Status attribute means that access has been denied.

Besides the <auth Method="..." Status="OK"/> reply, successful authorisation is manifested by the following reply from the XML bridge to bind: <bind Status="OK"/>. This signals that the communication channel has been successfully configured and authorised and is ready for sending messages in both directions now.

**Request**
<bind ConnType="LOCAL" AppName="SpkCtiTest"/>

**Response**
<auth>
<method Name="LOGON"/>
</auth>

**Request**
<auth Method="LOGON" LoginName="login" Password="password"/>

**Response**
<auth Method="LOGON" Status="OK"/>

**Response**
<bind Status="OK"/>

The following answers have been added for different situations:

NNB_XML_STATUS_OK ... external application can start sending other commands.

NNB_XML_STATUS_ALREADY_BOUND ... application ignores this error and can send commands, bind no longer needed.

NNB_XML_STATUS_NEIGHBOUR_IS_UNREADY ... application must repeat the bind command after a time delay of 100 ms at least.

No new commands can be sent until the CTI interface responds to the bind command.

If the application does not receive an answer in about 1 sec, it repeats the bind

command.

## Server Version

**Enter the command to find the current server time.**

**Request**

```
<msg Id="CTI_GET_DATETIME_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_GET_DATETIME_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_TIME Time="2011/12/1 12:11:14"/>
<CTI_IE_TZ_ID Id="37" TZStatus="STANDARD"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Active Connection Check

**Enter the command to check if the communication with the server is still active.**

**Request**

```
<msg Id="CTI_ALIVE_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_ALIVE_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Server Time Check

**Enter the command to find the current server time.**

**Request**

```
<msg Id="CTI_GET_DATETIME_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_GET_DATETIME_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_TIME Time="2011/12/1 12:11:14"/>
<CTI_IE_TZ_ID Id="37" TZStatus="STANDARD"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

# Session Configuration

This sections helps you with all commands and response related with sessions e.g. start and stop playing and more.

In this section:

## List of All Sessions

**Enter this command to list all existing sessions along with the following information: SessionId = session ID, Name = session name, Priority, PanelUserId = only for console panel, PanelMode = only for console panel, PanelVirtualInputId = only for console panel, FreerideId = only for console panel.**

**Request**

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_SESSION SessionId="0x4" Name="Moje session
nova" Flags="0x0" Priority="1" Channel="0" MasterVolume="4032"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
<CTI_NSPK_IE_SESSION SessionId="0x5" Name="New session (1)"
Flags="0x0" Priority="1" Channel="0" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

## List of All Sessions and Input Sources Assigned to Them

**The command lists all the sessions and the sources assigned to them. A session is defined by the SessionId parameter, the input source by the SourceId parameter and a combination of the Type and Id parameters. SourceId is the primary key of the source allocated to the session and identifies the input source when multiple sources are in a session at the same time. By combining the SessionId and SourceId parameters you get current information on the source in a session such as the currently played file, playing time position, etc. The Type and Id parameters help acquire general information on the source, i.e. the source type, source files, file Id and file duration.**

**Request**

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_SOURCES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_GET_ALL_SESSIONS_SOURCES_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0x5"
Flags="0x12" Type="PLAY_LIST" Id="0x1" Volume="4032"
Balance="7" FadeTime="0"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0xB"
Flags="0x12" Type="PLAY_LIST" Id="0x4" Volume="4096"
Balance="0" FadeTime="0"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x5" SourceId="0xA"
Flags="0x12" Type="PLAY_LIST" Id="0x5" Volume="153"
Balance="0" FadeTime="0"/>
</msg>
```

## Activate Session

**Enter this command to enable a session. A session is defined by the CmdPar1 = SessionId parameter. If you specify a wrong SessionId, the server processes the command and sends the OK message, but no session will be activated.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="ACTIVATE_SESSION"
CmdPar1="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Deactivate Session

**Enter this command to disable a session. A session is defined by the CmdPar1 = SessionId parameter. If you enter a wrong SessionId, the server processes the command and sends OK, but no session will be deactivated.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="DEACTIVATE_SESSION"
CmdPar1="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Add Session

**Enter this command to create a new session. A session is defined by the SessionId parameter. If the value differs from the values in the database, a new session will be created. If the parameter value is equal to the value of an existing session, the existing session with the specified value will be adjusted according to other parameters. Name = session name, Priority, Channel = session channel, MasterVolume = session volume, MasterBalance = session balancing value, MasterFadeTime = time during which the volume or balance change is effective if requested, PanelUserId = relates to the console panel, PanelMode = relates to the console panel, PanelVirtualInputId = relates to the console panel, FreeRideId = relates to the console panel.**

**Request**

```
<msg Id="CTI_NSPK_SET_SESSION_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION SessionId="0x1" Name="Moje nova
session" Flags="0x0" Priority="1" Channel="0" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SET_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Edit Session

**Enter this command to edit a session. A session is defined by the SessionId parameter. If the value differs from the values in the database, a new session will be created. If the parameter value is equal to the value of an existing session, the existing session with the specified value will be adjusted according to other parameters. Name = session name, Priority, Channel = session channel, MasterVolume = session volume, MasterBalance = session balancing value, MasterFadeTime = time during which the volume or balance change is effective if requested, PanelUserId = relates to the console panel, PanelMode = relates to the console panel, PanelVirtualInputId = relates to the console panel, FreeRideId = relates to the console panel.**

### Request

```
<msg Id="CTI_NSPK_SET_SESSION_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION SessionId="0x7" Name="Moje session upravena"
Flags="0x0" Priority="1" Channel="999" MasterVolume="4096"
MasterBalance="0" MasterFadeTime="0" PanelUserId="0xFFFFFFFF"
PanelMode="USER" PanelVirtualInputId="0xFFFFFFFF"
FreeRideId="0xFFFFFFFF"/>
</msg>
```

### Response

```
<msg Id="CTI_NSPK_SET_SESSION_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Remove Session

**Enter the command to pause a source in a session. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be suspended.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PAUSE" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Session State Monitoring

**Enter the command to create a hook on a session which will periodically send information on the session whenever a change occurs in the session. Defined by the Id = SessionId parameters. If this parameter is -1, the hook will be created for all sessions.**

**Request**

```
<msg Id="CTI_NSPK_CREATE_HOOK_REQ">
<CTI_NSPK_IE_OBJECT Type="SESSION_SOURCE" Id="-1"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SESSION_SOURCE_INFO_IND">
<CTI_NSPK_IE_SESSION_SOURCE_INFO SessionId="0x2"
SourceId="0x3" PlayState="PLAYING" ActFileId="0x11"
ActFile="C:\Documents and Settings\jsvoboda\Plocha\Download\Adele
- 21\01 Rolling in the Deep.mp3" ActDuration="229347"
State="ACTIVE" StateInfo="File(ACTIVE); Resampler(ACTIVE)"/>
</msg>
```

**IE**

<documentation IE="CTI_NSPK_IE_SESSION_SOURCE">
<member Type="KER_T_INT" Name="SessionId" Brief="Primary key source (link to SESSION) "/>
<member Type="KER_T_INT" Name="SourceId" Brief="Primary key source (link to SESSION_SOURCE) "/>
<member Type="NSPK_E_SES_PLAY_STATE" Name="PlayState" Brief="Playback status according NSPK_E_SES_PLAY_STATE "/>
<member Type="KER_T_INT" Name="ActFileId" Brief="Currently playing file (id corresponds FileId of PLAY_LIST) "/>
<member Type="KER_P_CHAR" Name="ActFile" OffsetPointer="true" Brief="Name of the currently playing file "/>
<member Type="KER_T_INT" Name="ActDuration" Brief="The length of the file in ms "/>
<member Type="NSPK_E_STATE" Name="State" Brief="Current status according NSPK_E_STATE source session "/>
<member Type="KER_P_CHAR" Name="StateInfo" OffsetPointer="true" Brief="Lyrically divorced Resource "/>
<documentation>

<documentation Enum="NSPK_E_SES_PLAY_STATE">
<item Name="STOPPED" Brief="Play is stopped "/>
<item Name="READING" Brief="Reads the next file in the "/>
<item Name="PLAYING" Brief="Now Playing "/>
<item Name="PAUSED" Brief="Playback is zapausováno "/>
<documentation>

<documentation Enum="NSPK_E_STATE">
<sure these items are sorted according to priority!!>
<item Name="ERROR" Brief="When opening the device error "/>
<item Name="OPENING" Brief="The device is currently open "/>
<item Name="CLOSING" Brief="The device is just closing "/>
<item Name="IDLE" Brief="The device is not open "/>
<item Name="ACTIVE" Brief="The facility is open and functional "/>
<documentation>

## Deactivate Session State Monitoring

**Enter this command to cancel the hook on a session. Defined by the Id = SessionId parameter. If this parameter is -1, the hook will be cancelled for all sessions.**

**Request**

```
<msg Id="CTI_NSPK_DESTROY_HOOK_REQ">
<CTI_NSPK_IE_OBJECT Type="SESSION_SOURCE" Id="-1"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_DESTROY_HOOK_CONF">
<CTI_IE_RESULT Result="OK"/>
</msg>
```

# Audio Input Configuration

This sections helps you with all commands and response related with sources e.g. adding source to session, activating/deactivating source in session etc. .

In this section:

## Add Source to Session

**Enter the command to add an input source to a session. The session is defined by the SessionId parameter and the source by the Type and Id parameters. SourceId defines the source only within the session. If the SessionId and SourceId parameters match, the source with the defined SourceId is replaced with a new source defined by the Type and Id parameters. If you specify a non-existent SessionId, the server will return an error message.**

**Request**

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x1" SourceId="0x2"
Flags="0x1A" Type="PLAY_LIST" Id="0x1" Volume="4096"
Balance="0" FadeTime="0"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

**Error**

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="REJECTED"/>
</msg>
```

## Edit Source in Session

**Enter the command to adjust the session input source. The session is defined by the SessionId parameter and the source by the Type and Id parameters. SourceId defines the source only within the session. If the SessionId and SourceId parameters match, the source with the defined SourceId is replaced with a new source defined by the Type and Id parameters. If you specify a non-existent SessionId, the server will return an error message.**

**Request**

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_NSPK_IE_SESSION_SOURCE SessionId="0x4" SourceId="0xD"
Flags="0x10" Type="PLAY_LIST" Id="0x1" Volume="1024"
Balance="0" FadeTime="0"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SET_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x422"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Delete Source from Session

**Enter the command to remove a source from a session. The session is defined by the SessionId parameter and the source by the SourceId parameter. If you specify a non-existent SessionId or SourceId, the server will return an error message.**

**Request**

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_SESSION_SOURCE_ID SessionId="0x4"
SourceId="0xD"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

**Error**

```
<msg Id="CTI_NSPK_REMOVE_SESSION_SOURCE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="INVALID_OBJECT"/>
</msg>
```

## Activate Source in Session

**Enter the command to activate a source in a session. Defined by the CmdPar1 = SessionId, CmdPar2 = SourceId and CmdPar3 = FileId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be activated. If the CmDPar3 value is -1 or any non-existent value, the source will be played from the first file in the sequence.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PLAY" CmdPar1="0x4"
CmdPar2="0x5" CmdPar3="-1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Deactivate Source in Session

**Enter the command to delete a file from an existing playlist. Defined by the PlayListId and FileId parameters.**

**Request**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_FILE_ID PlayListId="0x2" FileId="0x1"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Pause Source in Session

**Enter the command to pause a source in a session. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent, the server replies OK, but no source will be suspended.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PAUSE" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Skip to Next Line in Source

**Enter the command to skip to the next file in the sequence in a source. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent in the database, the server replies OK, but no change will be executed for any existing session.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="NEXT" CmdPar1="0x4"
CmdPar2="0x4"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Skip to Previous Line in Source

**Enter the command to skip to the previous file in the sequence in a source. Defined by the CmdPar1 = SessionId and CmdPar2 = SourceId parameters. If the CmdPar1 and CmdPar2 values are non-existent in the database, the server replies OK, but no change will be executed for any existing session.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="PREV" CmdPar1="0x1"
CmdPar2="0x1"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Smooth Change of Source Volume

**Enter the command to set the source volume. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId, CmdPar3 = volume and CmdPar4 = transition time from the current value to the new one.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_VOL" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="10" CmdPar4="2"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Smooth Change of Source Balance

**Enter the command to set the source balance. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId, CmdPar3 = balance and CmdPar4 = transition time from the current value to the new one.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_BAL" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="0" CmdPar4="2"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Set File Position in Source

**Enter the command to set the position of the played file in a source. Defined by CmdPar1 = SessionId, CmdPar2 = SourceId and CmdPar3 = time in milliseconds.**

**Request**

```
<msg Id="CTI_NSPK_CMD_REQ">
<CTI_NSPK_IE_SES_CMD Cmd="SET_POS" CmdPar1="0x1"
CmdPar2="0x1" CmdPar3="5000"/>
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_CMD_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

# Playlist Configuration

This sections helps you with all commands and response related with playlist e.g. adding songs to playlist, deleting playlists etc. .

In this section:

## List of All Playlists

**Enter the command to list all playlists defined for the server. Defined by the PlayListId, Name and Flags parameters (currently unused).**

**Request**

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x1" Name="Muj playlist 1"
Flags="0x0"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x4" Name="Novy playlist"
Flags="0x0"/>
</msg>
```

## Create Playlist

**Enter the command to create a new playlist. Defined by the PlayListId, Name and Flags parameters (currently unused).**

**Request**

```
<msg Id="CTI_NSPK_SET_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x1" Name="Muj playlist novy"
Flags="0x0"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SET_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Edit Playlist

**Enter the command to modify an existing playlist. Defined by the PlayListId, Name and Flags parameters (currently unused).**

**Request**

```
<msg Id="CTI_NSPK_SET_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_NSPK_IE_PLAYLIST PlayListId="0x7" Name="Muj playlist
upraveny" Flags="0x0"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_SET_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x421"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## Delete Playlist

**Enter the command to delete an existing playlist. Defined by the PlayListId parameter.**

**Request**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_ID PlayListId="0x2"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

## List of All Files in All Playlists

**Enter the command to list all files in all existing playlists. Defined by the PlayListId, FileId, Priorities, Filename, Duration and Shuffle parameters.**

**Request**

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_FILES_REQ">
<CTI_IE_REFERENCE Ref="0x420"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_GET_ALL_PLAYLISTS_FILES_CONF">
<CTI_IE_REFERENCE Ref="0x420"/>
<CTI_NSPK_IE_PLAYLIST_FILE PlayListId="0x1" FileId="0x1"
Priority="1" FileName="C:\Documents and Settings\All Users\Data
aplikacĂ-\2N TELEKOMUNIKACE\2N
NetSpeaker\Server\Media\Test.mp3" Duration="54085"
Shuffle="0x0"/>
</msg>
```

## Delete File from Playlist

**Enter the command to delete a file from an existing playlist. Defined by the PlayListId and FileId parameters.**

**Request**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_REQ">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_NSPK_IE_PLAYLIST_FILE_ID PlayListId="0x2" FileId="0x1"/>
</msg>
```

**Response**

```
<msg Id="CTI_NSPK_REMOVE_PLAYLIST_FILE_CONF">
<CTI_IE_REFERENCE Ref="0x423"/>
<CTI_IE_RESULT Result="OK"/>
</msg>
```

# Supported Internet Radio Stations

**Canada**

| Radio | URI | Comment |
|---|---|---|
| CJSW | http://stream.cjsw.com/cjsw.mp3.m3u | |
| CHRW | http://chrwradio.com/playlist/stream.m3u | |
| CKLN | http://www.ckln.fm/streams/ckln.m3u | |

**Czech republic**

| Radio | URI | Comment |
|---|---|---|
| Český rozhlas 1 - Radiožurnál | http://www.rozhlas.cz/audio/download/cro1_high.mp3.m3u | |
| Český rozhlas 2 | http://www.rozhlas.cz/audio/download/cro2_high.mp3.m3u | |
| Český rozhlas 3 | http://www.rozhlas.cz/audio/download/cro3_high.mp3.m3u | |
| ČRo Leonardo | http://www.rozhlas.cz/audio/download/leonardo_high_mp3.m3u | |
| ČRo D-dur | http://www.rozhlas.cz/audio/download/ddur_high_mp3.m3u | |
| ČRo Jazz | http://www.rozhlas.cz/audio/download/jazz_high_mp3.m3u | |
| ČRo Wave | http://www.rozhlas.cz/audio/download/radiowave_high_mp3.m3u | |
| Evropa2 | http://icecast3.play.cz/evropa2-128.mp3.m3u | |
| Frekvence 1 | http://icecast4.play.cz/frekvence1-128.mp3.m3u | |
| Radio Bonton | http://icecast3.play.cz/bonton-128.mp3.m3u | |
| Impuls | http://icecast5.play.cz/impuls128.mp3.m3u | |
| Radio Orlik | http://www.play.cz/radio/orlik128.mp3.m3u | |
| Rock Zone | http://icecast5.play.cz/rockzone128.mp3.m3u | |
| Radio Dechovka | http://icecast5.play.cz:8000/dechovka128.mp3 | |
| Radio Beat | http://62.44.1.26:8000/radiobeat128.mp3 | |
| Radio Blanik | http://kocka.limemedia.cz:8000/blanikfm128.mp3.m3u | |

**Denmark**

| Radio | URI | Comment |
|---|---|---|
| Danmarks Radio P1 | http://live-icy.gss.dr.dk:8000/Channel3_HQ.mp3.m3u | |
| Danmarks Radio P2 | http://live-icy.gss.dr.dk:8000/Channel4_HQ.mp3.m3u | |
| Danmarks Radio P3 | http://live-icy.gss.dr.dk:8000/Channel5_HQ.mp3.m3u | |
| DR P4 Bornholm | http://live-icy.gss.dr.dk:8000/Channel6_HQ.mp3.m3u | |
| DR P4 Esbjerg | http://live-icy.gss.dr.dk:8000/Channel15_HQ.mp3.m3u | |
| DR P4 Fyn | http://live-icy.gss.dr.dk:8000/Channel7_HQ.mp3.m3u | |
| DR P4 Kobenhavn | http://live-icy.gss.dr.dk:8000/Channel8_HQ.mp3.m3u | |
| DR P8 Jazz | http://live-icy.gss.dr.dk:8000/Channel22_HQ.mp3.m3u | |
| DR Ramasjang Radio | http://live-icy.gss.dr.dk:8000/A/A24H.mp3.m3u | |
| Radio Klassisk | http://onair.100fmlive.dk/klassisk_live.mp3.m3u | |

**Finland**

| Radio | URI | Comment |
|---|---|---|
| Radio Sun | http://app1.downtime.fi/sun.mp3.m3u | |
| Radio REX | http://media.innoventum.fi:8000/radiorex.m3u | not supported |
| Basso Radio | http://www.basso.fi/bassostreami.m3u | |
| Groove FM | http://217.30.180.242:8000/gvfm.mp3.m3u | |
| Iskelmä | http://www.iskelma.fi/nettiradio/iskelma.m3u | |
| Radio 957 | http://www.radio957.fi/nettiradio/957.m3u | |
| Järviradio | http://radio.6net.fi:8000/jarviradio.m3u | |
| Metro FM | http://217.30.180.242:8000/mrfm.mp3.m3u | |
| NRJ | http://149.5.240.22/WR-FI-finland.m3u | |
| NRJ Hip-Hop | http://149.5.240.22/WR-FI-HIPHOP.m3u | |
| NRJ Suomihitit | http://149.5.240.22/WR-FI-WR10.m3u | |
| NRJ RNB | http://149.5.240.22/WR-FI-RNB.m3u | |
| NRJ POP | http://149.5.240.22/WR-FI-POP.m3u | |
| Oi FM | http://media.innoventum.fi:8000/oifm.m3u | |
| NRJ HIT | http://149.5.240.22/WR-FI-HIT.m3u | |
| Radio 957 | http://www.radio957.fi/nettiradio/957.m3u | |
| Radio Aalto | http://www.listenlive.eu/aalto.m3u | |
| Iskelmä | http://www.iskelma.fi/nettiradio/iskelma.m3u | |

**Iceland**

| Radio | URI | Comment |
|---|---|---|
| Útvarp Kántrýbar | http://93.95.74.162:8000/listen.pls | not supported |

**Norway**

| Radio | URI | Comment |
|---|---|---|
| NRK P1 Finnmark | http://lyd.nrk.no/nrk_radio_p1_finnmark_mp3_m.m3u | |
| NRK P1 Nordland | http://lyd.nrk.no/nrk_radio_p1_nordland_mp3_m.m3u | |
| NRK P2 | http://lyd.nrk.no/nrk_radio_p2_mp3_m.m3u | |
| NRK P3 Urort | http://lyd.nrk.no/nrk_radio_p3_urort_mp3_m.m3u | |
| NRK P3 | http://lyd.nrk.no/nrk_radio_p3_mp3_m.m3u | |
| NRK Jazz | http://lyd.nrk.no/nrk_radio_jazz_mp3_m.m3u | |
| NRK Klassisk | http://lyd.nrk.no/nrk_radio_klassisk_mp3_m.m3u | |
| NRK Sport | http://lyd.nrk.no/nrk_radio_sport_mp3_m.m3u | |
| P5 Oslo | http://mms-live.online.no/P5_Oslo.m3u | |
| The Beat | http://stream.sbsradio.no:8000/thebeat.mp3.m3u | |

**United Kingdom**

| Radio | URI | Comment |
|---|---|---|
| Big L 1395 | http://eastlondonradio.com:8100/biglh.mp3.m3u | |
| Bolton FM | http://icecast.commedia.org.uk:8000/boltonfm.mp3.m3u | |
| Choice FM | http://media-ice.musicradio.com/ChoiceFMMP3.m3u | |
| Demon FM | http://live.demonfm.co.uk:8000/demon.m3u | |
| Gold | http://media-ice.musicradio.com/GoldMP3.m3u | |
| Insight Radio | http://icy-e-03.sharp-stream.com/insightradio.mp3.m3u | |
| North Manchester FM | http://live.canstream.co.uk:8000/manchesterfm.mp3.m3u | |
| Queen's Radio | http://quis.qub.ac.uk:8080/qrlivehi.m3u | |
| Two Lochs Radio | http://icecast.commedia.org.uk:8000/twolochs.mp3.m3u | |
| The Source FM | http://live.canstream.co.uk:8000/sourcefm.mp3.m3u | |

**USA**

| Radio | URI | Comment |
|---|---|---|
| KAJX - Aspen Public Radio | http://peace.str3am.com:6880/kajxhi.m3u | |
| KALX | http://icecast.media.berkeley.edu:8000/kalx-128.mp3.m3u | |
| KMFA | http://pubint.ic.llnwd.net/stream/pubint_kmfa.m3u | |
| KUHF | http://129.7.48.199/KUHF-HD1-128K.m3u | |

**Slovakia**

| Radio | URI | Comment |
|---|---|---|
| SRO Rádio Slovensko | http://live.slovakradio.sk:8000/Slovensko_128.mp3.m3u | |
| SRO Rádio _FM | http://live.slovakradio.sk:8000/FM_128.mp3.m3u | |
| SRO Radio Slovakia International | http://live.slovakradio.sk:8000/RSI_128.mp3.m3u | |
| Fun Radio | http://stream.funradio.sk:8000/fun128.mp3.m3u | |
| Radio Expres | http://85.248.7.162:8000/96.mp3.m3u | |
| Rádio Lumen | http://audio.lumen.sk:8000/live128.mp3.m3u | |
| Rádio Prešov | http://www.radiopresov.sk/lib/jorbis/64.mp3.m3u | |
| Radio Viva | http://85.159.106.242:8000/vivastream64.mp3.m3u | |
| Rádio Kiss | http://85.159.106.242:8000/kissmp3_128.mp3.m3u | |
| Rádio Frontinus | http://www.frontinus.sk/frontinus128.m3u | |

**Sweden**

| Radio | URI | Comment |
|---|---|---|
| Sveriges Radio P1 | http://sverigesradio.se/topsy/direkt/132-hi-mp3.m3u | not supported |
| Lite FM | http://www.litefm.se/live.m3u | |
| Radio Guld | http://audiostream.picsearch.com:8000/radioguld.m3u | |
| Studentradion 98,9 | http://130.238.166.180:8004/live.m3u | |
| Tidaholm FM | http://radio.fnf.nu:443/radiotidaholm.mp3.m3u | |

# IP Audio System Limits and Specifications

- **Supported OS**
- **2N® NetSpeaker Server**
  - WIN VISTA 32/64 bit
  - WIN 7 32/64 bit
  - WIN Server 2008 R2
  - WIN XP SP3 – Not recommended
- **2N® NetSpeaker Console**, **2N® NetSpeaker Player**
  - WIN XP
  - WIN VISTA 32/64 bit
  - WIN 7 32/64 bit
- Other necessary conditions
  - Windows Media Player 11
  - The Microsoft Visual C + + 2008 Redistributable Package (x86) (is on the FTP – installation is required, otherwise you will have problems with stability)
  - Microsoft. NET Framework 4 redistributable package (part of the installation)
- **SIP:**
  - Registration No.: Counterparty calls on the IP address of **2N® NetSpeaker** predefined server and port for the SIP trunk (eg 5061).
  - Registration: **2N® NetSpeaker** only client netspeaker registering in the PBX. It cannot switch to mode = SIP registrar proxy (no phones register to it).
- **2N® NetSpeaker SD Card**

| Type | Capacity | Transfer rate* |
|---|---|---|
| **SD** | 2GB | 49kB/s |
| **SDHC SP class 6** | 8GB | 71kB/s |
| **SDHC Patriot class 4** | 16GB | 91kB/s |
| **SDHC ADATA class 4** | 32GB | 102kB/s |
| **SDHC ADATA UHS–I** | 4GB | 111kB/s |
| **SDHC SanDisk Mobile class 6** | 4GB | 142kB/s |

*from version **2N® NetSpeaker** 1.2.x

- **Communication Protocols**

| Komunikace | Port | Protokol |
|---|---|---|
| **Control Panel >> Server** | 6990 | proprietary |
| **Console >> Server** | 6990 | proprietary |
| **Player >> Server** | 6990 | proprietary |
| **Server >> NSPK** | 6998 | proprietary |
| **NSPK >> Server** | 6999 | proprietary |

- **Telnet**
  - In version 1.1.1 and higher, TELNET is off by default immediately after connecting to the **2N® NetSpeaker Server**. After disconnecting from the server, TELNET is re–activated. If you want to enable TELNET even when **2N® NetSpeaker** is connected to the server, you must enable this in Speakers in the Control Panel.
- **Test Results**

| HW – CPU, Chipset | Intel Atom Z530 | Intel XEON E5645 |
|---|---|---|
| **WIN VISTA – MAX sessions/streams/NSPK** | WIN VISTA – 5/5/20 | |
| **WIN 7 – MAX sessions/streams/NSPK** | WIN 7 – 6/6/20 | |
| **WIN 8 – MAX sessions/streams/NSPK** | WIN 8 – 6/6/20 | |
| **Win Server 2008 R2** | | 50/50/500 |
| **Inputs** | ? | ? |
| **Users** | 1000 | 10000 |
| **VoIP trunks/concurrent calls** | 10/2 | 100/100 |